2018
Annual Bridge Report

King County

Department of Local Services

Road Services Division

August 2019

Cover photo: Coal Creek Bridge No. 3035A located near the community of Enumclaw

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ANNUAL BRIDGE REPORT

Department of Local Services
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I. EXECUTIVE SUMMARY

King County Department of Local Services, Road Services Division owns and maintains 182 bridges in the unincorporated area of King County. Built over many generations, these bridges range from less than 10 years to over 100 years in age. These bridges are an integral part of a road system that supports more than one million vehicle trips every day, yet the inventory is old. The average age of the bridge inventory is 50 years old. At the end of 2018, there were 75 bridges beyond their expected useful life. The issue is particularly pronounced with the timber bridges, which make up about one-third of the inventory. Although timber bridges have a typical useful life of 50 years, their average age is 67 years old. The issue of the aging inventory is compounded by the steep revenue decline over the last six years.

As bridges continue to age and deteriorate, they will need to be replaced or closed. Although the useful life has been extended through prior repairs, the overall condition of the bridge inventory is declining and major structural repair is longer viable as a long-term solution. In 2018, inspection findings following a flood event led to closure of Fish Hatchery Bridge to all traffic, bringing the total number of closed bridges to three.

The county has made a significant shift in its analysis of bridge conditions and priorities based on a directive from the Federal Highway Administration (FHWA). Following a recent decision to allow heavier trucks on roadways, the FHWA developed new calculations for determining the weight that a bridge can safely carry. Federal, state and local governments are evaluating publicly owned vehicular bridges using these new criteria and formulas and are determining whether additional weight restrictions must be placed on bridges under this new requirement.

There are 178 vehicular bridges in the inventory and, as mandated, the county is evaluating each of them using current bridge-condition information and the new federal standards to calculate bridge weight-carrying capacity. The bridge load rating update program is underway with 71 ratings complete at year end 2018. Under the new criteria, almost 30 percent of those bridges have been posted with weight restrictions. Load rating analysis is due by the end of 2022 for another 105 bridges and the number of restricted bridges is expected to grow as more evaluations are completed.

Immediate impacts of the restrictions include trucks detouring onto roads less appropriate for heavy truck traffic and the risk that emergency responders may be delayed if certain types of heavier fire apparatus are unable to cross a bridge on the most direct route. Because these new requirements are across the entire road network, restrictions are having an impact on travel in King County.

Given the impacts of the new load-rating criteria, aging inventory, and a decline in overall inventory condition, the 2019-2020 Bridge Safety Program budget was approved by the County Council in November 2018. This program addresses the urgent needs of replacing five of the top ranked bridges in the County's bridge inventory, however the replacement need is significantly more than those five bridges and, moving forward, additional revenue will be needed to continue the program.

II. INTRODUCTION

This bridge report is prepared by the King County Department of Local Services (DLS) Road Services Division (Roads) each year to fulfill the requirements of Washington Administrative Code (WAC) 136-20-060. This WAC requires the County Road Engineer's report of bridge inspections as follows:

"Each county engineer shall furnish the county legislative authority with a written report of the findings of the bridge inspection effort. This report shall be made available to said authority and shall be consulted during the preparation of the proposed six-year transportation program revision. The report shall include the county engineer's recommendations as to replacement, repair or load restriction for each deficient bridge. The resolution of adoption of the six-year transportation program shall include assurances to the effect that the county engineer's report with respect to deficient bridges was available to said authority during the preparation of the program. It is highly recommended that deficient short span bridges, drainage structures, and large culverts be included in said report."

This report summarizes King County Roads 2018 bridge inventory, programs, inspections, activities, and findings. These programs form an integrated and comprehensive strategy to maintain and preserve the county's bridges and the continuity of the roadway network. The three main bridge program goals are:

1. Keep the bridges open and safe for public use.
2. Preserve bridge infrastructure by maximizing its useful life through active maintenance, repair, load upgrades or rehabilitation.
3. When possible, replace existing bridges with reliable new structures when repair, load upgrades or rehabilitation is not feasible.

As bridges age beyond their expected useful life, Roads will continue to undertake bridge maintenance and preservation activities, and when bridges can no longer be maintained in a safe and serviceable condition, they will be restricted or closed.

This report incorporates the inspection results for 2018 and the new FHWA load-rating method as part of the priority ranking for bridge replacements. It updates the current list of load-limited bridges and sets the immediate work plan for both the proposed bridge replacement and bridge preservation programs.

Throughout the report, several references are made to specific bridges, each of which is uniquely identified by name and number; e.g., **Smith Parker Bridge No. 615A.** In order to assist the reader, the complete bridge inventory and location descriptions are included at the end of this report in Appendix One.

Information regarding current and future bridge projects is addressed in Sections VI, VII and VIII of this report. Current projects can be viewed on the King County website at:
http://www.kingcounty.gov/depts/local-services/roads/bridges.aspx

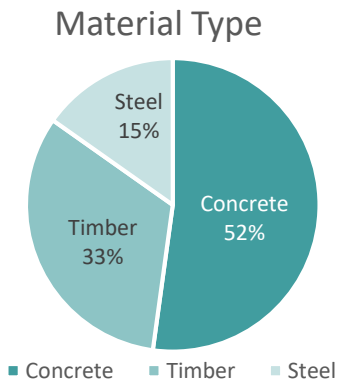
III. BRIDGE INVENTORY

Roads engineers inspect and inventory 182 bridges located across King County consisting of:

- 175 vehicular bridges
- 3 vehicular bridges co-owned with other agencies
- 3 pedestrian bridges
- 1 safety corridor bridge

The bridges owned and maintained by Roads are built with several types of materials in a variety of designs. Of the 182 bridges in the inventory, 60 are built with timber, 27 are constructed with steel main spans and 95 are concrete structures.

The adjacent chart shows this breakdown by percentage of the inventory.

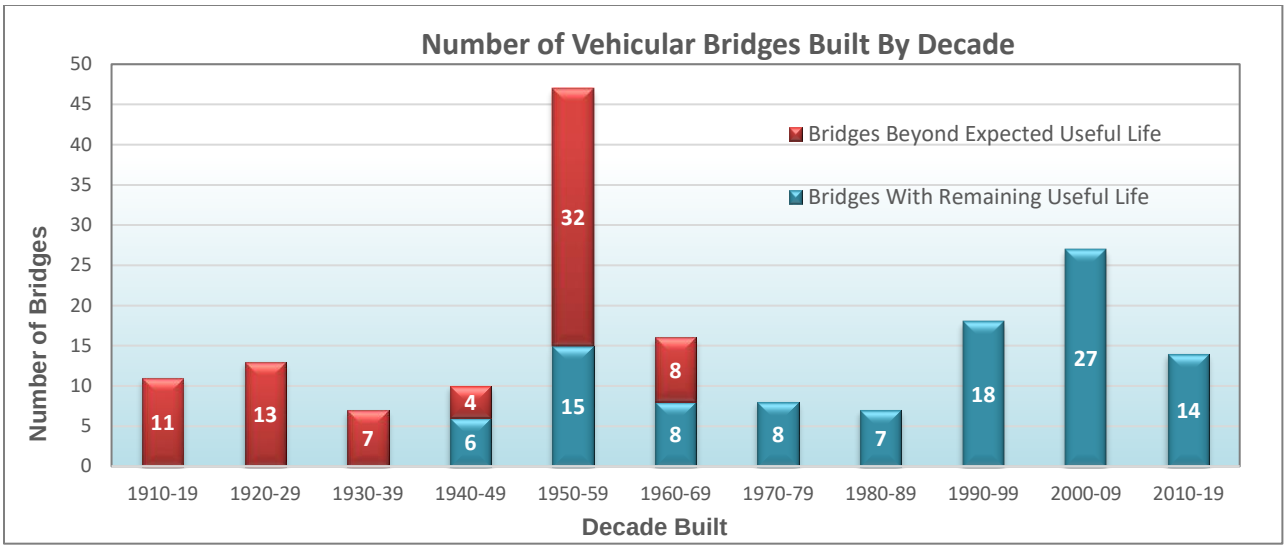


Many of the timber bridges were built during the 1950s. The expected service life of timber bridges is 50 years, which indicates the majority of the King County timber bridge inventory has aged beyond its expected useful life. The average age of King County bridges with timber elements is 67 years.

The county has been able to extend the useful life of its timber bridges due to thorough monitoring and bridge repairs that were funded in 1995-1997 and 2001-2003. Major structural repair of timber bridges is no longer viable as a long-term solution due to the decline of the condition of the substructure and foundations of these bridges and the fact that the state's hydraulic code is now requiring replacement rather than major reconstruction of bridges in waterways that restrict the flow of a given waterbody.

Forty-seven of the 182 bridges are short-span bridges, which are spans equal to or less than 20 feet long. Bridges that are classified as short-span bridges are not eligible for federal funds and would have to be replaced at the county's own expense. In 2007, Roads began an aggressive short-span bridge replacement program to address the large number of deficient timber bridges. Each year of the program, two to four deficient timber bridges were replaced with longer concrete or steel spans. Use of concrete or steel eliminates the damaging effects of scour common for short, older timber bridges and removes the toxic creosote-treated timber from streams. This program was halted in 2013 due to the significant decline in Roads revenues.

The remaining 135 bridges are considered long-span bridges, which are greater than 20 feet in length. Of these long-span bridges, 31 are timber bridges.



The graph above shows the number of vehicular bridges built by decade. It also shows the number of bridges that are beyond their expected useful life. The anticipated useful life of bridges varies by material type with timber bridges at 50 years, and steel bridges and concrete bridges at 75 years. Most of the county bridges have multiple material types which are used for substructure, superstructure and decking. Of the 178 vehicular bridge inventory, 75 are beyond their expected useful life. In addition, the average age of the vehicular bridge inventory is 51 years and the entire inventory average age is 50 years old.

One measure that provides an overview of the condition of the inventory is a rating factor known as the Sufficiency Rating (SR). The average SR of the entire inventory provides a comparative look at the health of the inventory from one year to the next. The SR is a score calculated for each bridge using a multitude of ratings the inspector assigns to the bridge based on the condition of the various components of the bridge. The geometric layout, safety, traffic volume, and the length of the detour route (in the event of a closure) are also factored into the SR. The SR ranges from zero (a bridge that is closed and cannot carry traffic loads) to 100 (a new bridge with no deficiencies). As deficient bridges are replaced, the average SR moves upward slowly; when the average SR drops over the course of several years this indicates the health of the bridge inventory is on a decline.

The average SR over the past 10 years for bridges in King County is shown in the table below.

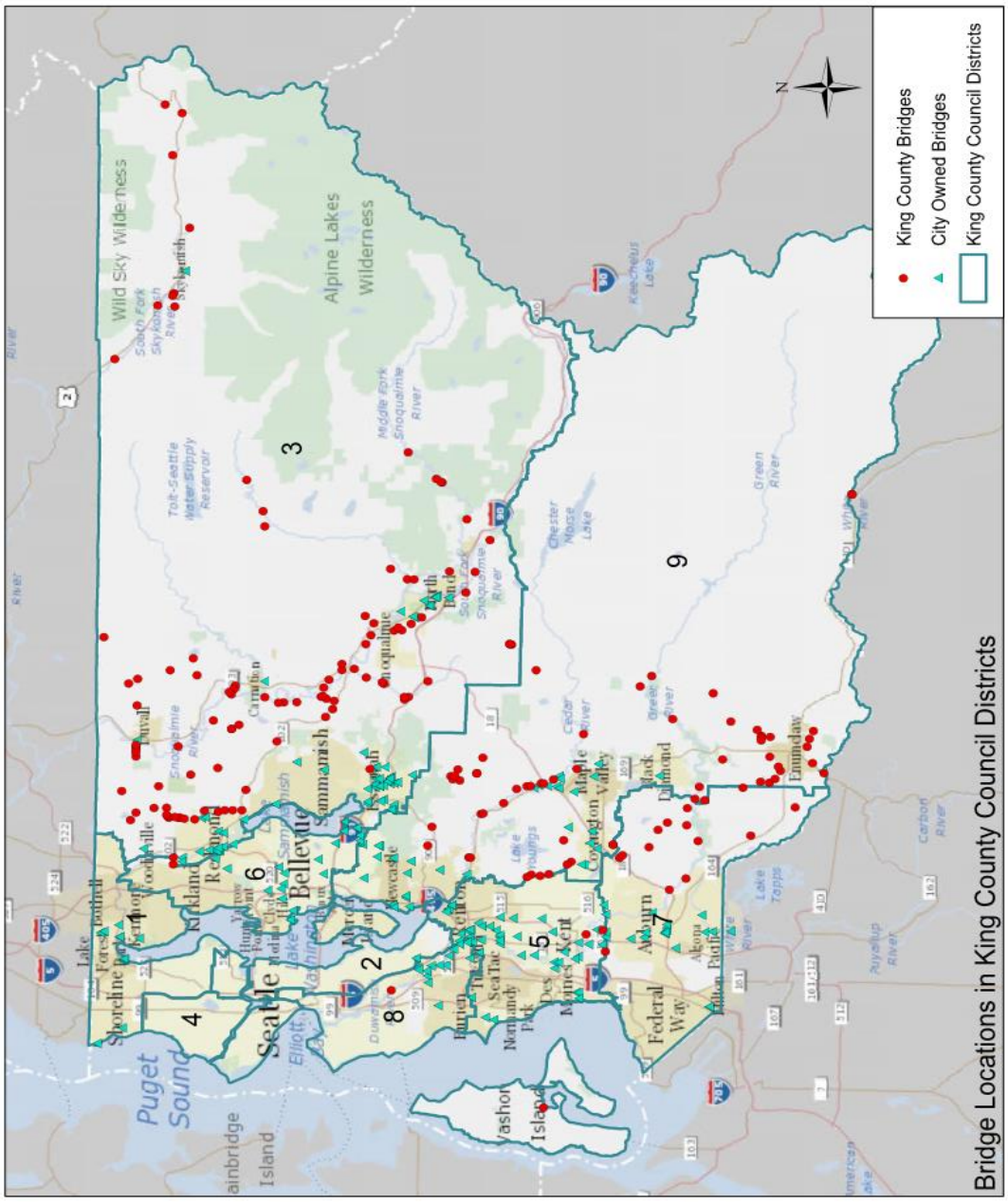
Average Sufficiency Rating Table

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
SR	70.1	71.5	72	71.1	72.3	72.3	71.6	71.6	70.2	69.8

The average sufficiency rating for all county bridges is 69.8; the average sufficiency rating for the timber bridges is only 51.8 and has steadily declined over the past few years. Compared to non-timber bridges, with a respectable average sufficiency rating of 78.4, the difference can be explained by observing that the average age of the timber elements supporting King County bridges is 17 years older than the estimated useful life of a timber bridge.

FIGURE 1: BRIDGE LOCATIONS WITHIN KING COUNTY COUNCIL DISTRICTS

The following *Figure 1: Bridge Locations with King County Council Districts* illustrates the distribution of bridges throughout King County by council district.



IV. BRIDGE INSPECTION

The National Bridge Inspection Standards (NBIS), in conformance with the code of federal regulations (CFR) 23 Part 650 Subpart C, mandate that public agencies routinely inspect and report on all publicly owned bridges at least once every two years. Under these standards, the county is required to document condition codes for bridge elements and report the current condition of each bridge to FHWA. Bridges with deficient conditions may require inspection more frequently than the standard 24-month cycle. In 2018 inspectors conducted routine inspections on 106 of the 182 bridges that Roads owns. Many bridges in the King County inventory span rivers, ravines, railroads, trails or other roadways. Some of these bridge inspections require special equipment such as an Under Bridge Inspection Truck (UBIT) to access all of the bridge features. King County has 39 bridges that require a UBIT for inspection. In 2018 a UBIT was used for inspection on 21 bridges. The county rents UBIT vehicles from Washington State Department of Transportation (WSDOT) and Seattle Department of Transportation on a contract basis.

Steel bridges can be built using many different designs. Bridges built of steel that have only two load paths require a Fracture Critical (FC) inspection which is an in-depth inspection of the steel components checking for cracking, tears, buckling, excessive rust and other defects in steel. King County Roads owns 15 bridges that require an FC inspection; 7 FC inspections were conducted in 2018.

Inspectors also conduct Special Feature Inspections which are required for bridges with special features such as the cables or strands on a cable stayed or suspension bridge. Roads owns two bridges that require a Special Feature Inspection: Baring Bridge No. 509A and Flaming Geyser Bridge No. 3024, but no Special Feature Inspections were required in 2018.

Four bridges have foundations in deeper waterways that are not accessible during routine inspections. The four bridges include:

- Stossel Bridge No. 1023A
- Duvall Slough Bridge No. 1136B
- Sikes Lake Trestle No. 2133A
- South Park Bridge No. 3179

Every five years, an underwater inspection is conducted on these bridges by WSDOT's dive team. Underwater inspections were not required in 2018.

The adjacent table summarizes the bridge inspections in 2018.

Inspection Type	Total	Inspected in 2018
Routine	182	106
UBIT	39	21
Fracture Critical	15	7
Special	2	0
Underwater	4	0

During bridge inspections, inspectors make in-depth evaluations of the condition of the bridge structure and document all observable defects. When the inspection reveals a deficiency, a maintenance work order is generated and assigned a priority. Urgent structural or safety concerns are promptly addressed, while lower-priority defects are placed in the work order backlog. Bridge inspection reports are reported in a timely manner to WSDOT Local Programs, which in turn verifies compliance with the NBIS; WSDOT, in turn, reports the results to FHWA.

V. LOAD-LIMITED OR RESTRICTED BRIDGES

A. LOAD RATING REQUIREMENTS

In November 2013, FHWA sent a memorandum to all government agencies regarding new requirements for Bridge Load Rating. The memorandum requires agencies to add analysis of Specialized Hauling Vehicles (SHVs) as defined in the American Association of Highway and Transportation Officials (AASHTO) Manual for Bridge Evaluation (MBE) as part of each bridge load rating report. These trucks can carry more concentrated loads than previously authorized. They are single-unit (SU) vehicles with closely spaced moveable axles that raise and lower as needed for weight carrying which results in higher loads distributed over a shorter distance. The deadline for completion of the new load-rating analysis is December 31, 2022.

This truck is an example of Single Unit Vehicle classified of a SU7 as it has a total of 7 axles

Additional requirements were added in November 2016, when FHWA issued a memo that provided guidance on compliance with Section 1410 of the "Fixing America's Surface Transportation Act" (FAST Act) law signed in 2015. Section 1410 includes bridge load rating and posting requirements for Emergency Vehicles on the Interstate System and within reasonable access to the Interstate System. Reasonable access is defined as at least one-road-mile from access to and from the National Network of highways.

FHWA has established two emergency vehicles (EV2 and EV3) to be included in the bridge load rating reports and posting requirements. These vehicles can create higher load effects compared to AASHTO legal loads (i.e. Types 3, 3S2, 3-3, and SU4 to SU7). In 2018, the WSDOT Design Manual was amended to include the EV2 and EV3 vehicles as part of the legal loads and load posting requirements per the 2016 FHWA memo.

King County Roads has five vehicular bridges that are within one-road mile of interstate access. These bridges are Brissack Bridge No. 1116A, Edgewick Bridge No. 617B, Fire Station Bridge No. 186J, Preston Bridge No. 682A, and Preston Frontage Road Bridge No. 5046. In compliance with the FAST Act, Roads will include the two emergency vehicles in future bridge load rating reports when updates are required.

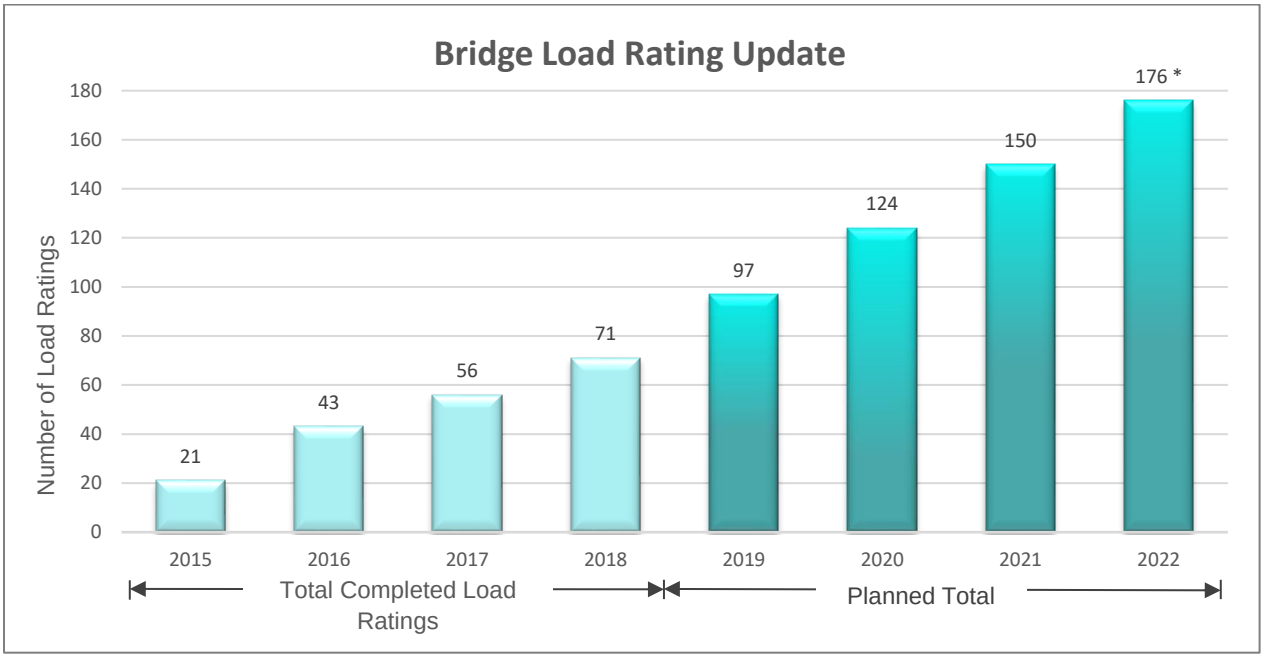
B. IMPACT OF NEW REQUIREMENTS AND PROGRAM STATUS

The intent of the load rating and posting provisions of the NBIS is to ensure that all bridges are appropriately evaluated to determine their safe, live-load-carrying capacity considering all unrestricted legal loads and existing bridge conditions, and that bridges are restricted, if necessary, in accordance with the AASHTO MBE.

Many of King County's older structures were designed and constructed based on older design vehicles which are lighter than current HL-93 design vehicles. HL-93 is the design truck specified in the current AASHTO design code. The use of these heavier vehicles, compounded by continued aging and deterioration of the bridge inventory, creates an expectation that the number of load-restricted bridges will continue to grow until completion of the load rating program by the end of 2022.

The new load rating requirements set a new and much higher benchmark for assessing the structural capacity of a bridge. The new regulations will restrict trucks and heavy vehicles from using bridges that the previous regulations would not have restricted them from crossing. This will cause system wide impacts to freight mobility, service delivery to communities and limit types and flexibility of fire apparatus that can respond at certain locations.

By the close of 2018, King County Roads had completed load rating updates for 71 bridges in compliance with the new requirements. Load rating update analysis is due by the end of 2022 for another 105 bridges. The chart below includes the number of load ratings recently completed and planned for completion in the future.



* Load Rating update not planned for the following closed bridges:
SE 408th Street Bridge No. 3056A and Miller River Bridge No. 999W

At the end of 2018, there were 19 load restricted bridges. In early 2019, four additional bridges were load restricted; hence there are currently 23 load restricted bridges. The impact of the posting is that some bridges are restricted from transporting certain types of fire apparatus, garbage trucks, cement trucks, freight trucks, and other heavy vehicles. The load-restricted bridges are listed in Appendix Two – Load Limited or Restricted Bridges.

VI. BRIDGE PRIORITY RANKING FOR REPLACEMENT OR REHABILITATION

A successful bridge program is based on a systematic and balanced approach to managing bridge preservation and replacement needs. As discussed in Section II, the main program goals are:

- Keep the bridges open and safe for public use.
- Preserve bridge infrastructure by maximizing its useful life through active maintenance, repair, load upgrades, or rehabilitation.
- When possible, replace existing bridges with reliable new structures when repair, load upgrades, or rehabilitation is not feasible.

Essential to meeting these goals is having a well-documented inspection program coupled with a robust bridge preservation program to maximize the useful life of the inventory. Once preservation is no longer an option, it becomes necessary to close or replace bridges.

Management challenges for the bridge inventory include:

- Bridges aging beyond their useful life and exceeding their theoretical design life
- Traffic volume continues to grow
- Type and size of highway trucks are changing, resulting in more concentrated loading on bridges
- Increasing costs to replace bridges

Using the bridge priority analysis adopted by the King County Council in 1994 (Ordinance 11693), priority rating scores for the entire bridge inventory were developed. The analysis incorporates the new mandated FHWA load-rating method into the criteria for calculating the bridge priority ranking. The process prioritizes bridges most in need of replacement or rehabilitation to correct structural or functional deficiencies. The bridges with the highest scores are reviewed in-depth for consideration in the Capital Improvement Program (CIP) for the six-year CIP budget planning effort.

The top 30 high-priority bridges are listed below in the Replacement/Rehab Bridge Ranking and CIP Project Status Table. This list is developed based on the results of the bridge inspections and load-rating updates at the end of 2018 and is subject to change with findings of bridge inspections and load rating updates during the current year. Of the 30 high-priority bridges, only 15 are long-spans and potentially eligible for federal bridge replacement grants.

The key factors influencing the ranking include the new load-rating criteria, the decline in the condition of some of the bridges, and the increase in traffic volumes in the unincorporated area. These findings change the sufficiency ratings and priority scores. Specific events, such as a flood, winds or earthquakes can have significant impact as well, and require a change in ranking and work priorities between these reports.

Replacement/Rehab Bridge Ranking and CIP Project Status Table

- Italicized type indicates a short-span bridge (20 feet or less in length)
- Load Posted: P=load posted
- Main Material Type: T = Timber, C = Concrete, S = Steel
- Landmark Bridges: See Appendix Four for a list of all King County Landmark Bridges.

2018 Rank	Bridge Number	Bridge Name	Load Posted	Remarks/Scope	Main Material Type
1	509A	Baring Bridge	P	Replacement: Design funding in the Bridge Safety Program. Designated King County Landmark Bridge	T
2	*3126*	*S 277th Street*	P	Replacement: Design funding in the Bridge Safety Program	C/T
3	1320A	Ames Lake Trestle	P	Replacement: Design funding in the Bridge Safety Program	T
4	3035A	Coal Creek	P	Replacement: Design and Construction funding from a Federal Grant and the Bridge Safety Program	S/T
5	493C	Fifteen Mile Creek		Replacement: Flood Control District Fund Programmed for TSL Report in 2018-19	T
6	271B	Upper Tokul Creek	P	Replacement: Design funding in the Bridge Safety Program	C/T
7	1741A	Issaquah Creek	P	Recommend New Replacement Project	T
8	3086OX	Berrydale Overcrossing		Replacement: Design Report and Coordination with BNSF	T
9	364A	Deep Creek	P	Recommend New Replacement Project	S/T
10	*240A*	*Cottage Lake Creek*	P	Recommend New Replacement Project	C/T
11	1239A	Upper Preston		Recommend New Replacement Project	C/T
12	*333A*	*Bear Creek*	P	Recommend New Replacement Project	C/T
13	3055A	Boise X Connection	P	Recommend New Replacement Project	S/T
14	2133A	Sikes Lake Trestle		Recommend Closure, Repair, Rehab or Replacement (C3R) Study	C/T
15	*3020*	*Green Valley Road*		Recommend New Replacement Project	C/T

2018 Rank	Bridge Number	Bridge Name	Load Posted	Remarks/Scope	Main Material Type
16	*3022*	*Green Valley Road*		Recommend New Replacement Project	C/T
17	122I	North Fork	P	Scour Critical: Flood Control District Fund Programmed Feasibility Study planned in 2019-2020	C/S
18	*909B*	*Clough Creek*	P	Recommend New Replacement Project	C/T
19	*480A*	*Bear Creek*	P	Recommend New Replacement Project	C/T
20	*249B*	*C.W. Neal Road*	P	Recommend New Replacement Project	C/T
21	*122N*	*Tate Creek*		Replacement: Flood Control District Fund Programmed Feasibility Study in 2023	C/T
22	*257Z*	*Horseshoe Lake Creek*	P	Recommend New Replacement Project	T
23	*3030*	*SE 380th Street*	P	Recommend New Replacement Project	C/T
24	*3060*	*208th Ave SE*	P	To Be Determined	C/T
25	1086A	Kimball Creek	P	To Be Determined	T
26	*3109A*	*Soos Creek*	P	To Be Determined	T
27	1136E	Woodinville-Duvall		Deck Overlay Funded by Federal Grant Scheduled in 2019	C
28	*61B*	*Fish Hatchery Road*		Closed due to scour damage. Proposed Flood Control District Fund with scheduled repairs in 2021	C/T
29	*249C*	*CW Neal Road*		To Be Determined.	C/T
30	83D	Issaquah Creek		To Be Determined	C/T

VII. BRIDGE PRESERVATION

The intent of a bridge preservation program is to perform cost-effective projects to extend the useful life of the bridge. The bridge preservation program includes the following work categories:

- Load Upgrades
- Bridge Re-decks
- Bridge Painting
- Scour/hydraulic Projects
- Bridge Seismic Retrofits
- Bridge Maintenance Repairs

A. LOAD UPGRADES

When feasible, projects that address load-carrying capacity deficiencies will be addressed so that restrictions can be removed or reduced. In 2018, load upgrade work was successfully completed for three bridges – Greenwater Bridge No. 3050A, Tolt Bridge No. 1834A, and Fifteen Mile Creek Bridge No. 1384A.

Greenwater Bridge No. 3050A

This 18 feet long and 19 feet wide timber bridge was constructed in 1964 carrying SE 496th Place over Packard Creek. It is located near the community of Greenwater and provides sole access for 10 homes east of the bridge. The result of the updated load rating was that the bridge carrying capacity was inadequate for fire trucks to cross the bridge. Because of the critical need, a high priority load upgrade project was implemented, and the work was completed in summer 2018 by County forces. The work entailed upgrading the superstructure to bring the load capacity to current standards.

Tolt Bridge No. 1834A

During load rating analysis for this bridge in early 2017, engineers discovered deficiencies in the connection details and the bridge was posted for a 6-ton gross vehicle load limit.

The County Executive declared an emergency in June 2017 allowing Roads to perform bridge repairs immediately. The bridge was temporarily posted and lane restricted during the repair construction. Repairs included adding or replacing close to 7,000 higher-strength bolts and adding about 28,000 pounds of new splice and gusset plates at 80 truss joints. In November 2018, construction was completed and the bridge was re-opened without lane or load restrictions.

Tolt Bridge No. 1834A elevation view from the west bank of the Snoqualmie River

Fifteen Mile Creek Bridge No. 1384A
This bridge is located south of the city of Issaquah and carries Issaquah-Hobart Road SE over Fifteen Mile Creek. The bridge is constructed of cast-in-place concrete and is 64 feet long and 24 feet wide. It carries an average of 17,500 vehicles per day.

The updated load rating revealed the bridge did not have adequate capacity for Specialized Haul Vehicles. Because of the high traffic volume and long detour, a project was designed to strengthen the superstructure by applying Fiber Reinforced Polymer (FRP) to the concrete beams. This was the first application of FRP on a King County bridge. Construction was completed in summer 2018 and the bridge is now open for all legal vehicles without restrictions.

Future Load Upgrades
When a bridge load rating reveals substandard capacity, engineers conduct an evaluation of the community impact of a load restriction and the feasibility of a load upgrade. The following bridges are newly identified as potentially needing a load upgrade: Patton Bridge No. 3015 and Stossel Bridge No. 1023A.

- Patton Bridge carries about 2,500 vehicles per day with an 11-mile detour. It is comprised of cast-in-place concrete box girder approach spans with a steel box girder drop in span over the Green River. The bridge is listed in the National Register of Historic Places and the Washington Heritage Registry. Patton Bridge is currently posted with load restrictions, however, a consultant study is proposed to identify options for repair/load upgrade.

- Stossel Bridge is a historic King County Landmark truss bridge and the deficiencies are identified at some of the connections. The repair will include upgrading the bolts at select locations.

B. BRIDGE RE-DECKS

Vehicular traffic will generate wear and rutting on a concrete bridge deck over the life of a bridge. Bridge decks are comprised of various materials including bare concrete, bare timber and asphalt overlays atop concrete, timber, or steel bridge structure. Deck deterioration occurs over time as age, traffic, and severe weather take their toll. Once a deck begins to deteriorate, its destructive pattern quickens as vehicle impact increases, leading to even more deck deterioration.

Depending on the deck driving surface material, a re-deck will take different forms. For deteriorated timber or steel, the failed portions will be removed, replaced, and refastened. For deteriorated concrete, there are two major options. One option to correct excessive wear is to add a two-coat epoxy overlay. This type of overlay requires less construction time and is less expensive compared to removing a portion of the deck and adding a modified concrete overlay. In both cases, delaminated areas are removed and patched prior to overlay. Epoxy overlay will require more frequent overlays depending on the traffic wear and tear. For deteriorated asphalt, the asphalt is mechanically ground and repaved. Concrete deck bridges are prioritized based on the deck scaling condition and percentage of deck area in an advanced state of deterioration as reported in the bridge inspection reports. The bridge inspectors report these conditions on the bridge inspection report during the routine inspections.

In 2018, design was underway for structural overlay of two bridges.

Landsburg Bridge No. 3075
This concrete bridge, built in 1982, carries Landsburg Road SE over the Cedar River east of Maple Valley. The bridge has widespread deck delamination and requires continual maintenance. This $750,000 project was funded by the Federal Bridge Program for construction in 2019.

Landsburg Bridge No. 3075 deck surface with patched areas and spalls

Woodinville-Duvall Bridge No. 1136E
This concrete cast-in-place bridge was built in 1948. It is located west of the city of Duvall and it carries Woodinville-Duvall Road over a seasonal overflow channel to the Snoqualmie River. Federal Bridge Program funding of $250,000 is available for design and construction of a structural overlay project. Construction is scheduled in the summer of 2019.

C. BRIDGE PAINTING

Roads owns and maintains a total of 27 steel bridges, of which 22 require paint. Steel bridge components require paint to prevent premature corrosion which can significantly reduce the strength of the bridge. Keeping up with a painting program will help to preserve the bridges and will extend its useful life before a major rehabilitation or replacement is warranted. The condition of the paint is assessed and recorded during the routine bridge inspections. Painting is restricted to summer months due to weather conditions and the permitting process.

Appendix Three Painted Bridges lists the steel bridges and paint needs in the Roads bridge inventory. There are two active painting projects in the program.

Foss River Bridge No. 2605A
The Foss River Bridge was built in 1951. It was last painted in 1994 and is several years overdue for repainting. The bridge is located three miles east of Skykomish on Foss River Road NE over the Foss River. This 14 feet wide single lane bridge is 120 feet in length. The bridge is comprised of a steel pony truss with a steel girder approach span. The work will include completely removing the existing encapsulated lead paint and repainting all exposed metal surfaces with the WSDOT standard five-coat system. The bridge is scheduled for repainting construction in 2019.

Flaming Geyser Bridge No. 3024
The bridge is a cable stay bridge with steel girders. This bridge hasn't been repainted since it was originally built in 1991. The steel girders are exhibiting local rust and areas of peeling paint. Repainting will arrest further rust and section loss and will preserve the useful life of the bridge. This bridge is scheduled for repainting in 2020.

D. SCOUR/HYDRAULIC PROJECTS

Ninety-five percent of Roads bridges are located over water. All bridges spanning waterways are required to have a scour evaluation to identify the foundation stability and the bridge's susceptibility to erosion of streambed materials. There are 45 bridges with an elevated scour risk: of these, 23 are scour critical and 22 have unknown foundations. Temporary scour countermeasures are in place at an additional 18 bridges.

All bridges are monitored for scour during the routine inspection. Bridges that are subjected to flooding events are inspected after the flood waters recede enough to safely evaluate the structure for possible scour. In 2012, SE 408th Street Bridge No. 3056A was permanently closed to all traffic due to scour under the shallow foundation.

In 2018, scour repairs were constructed on the following bridges:

Duvall Bridge No. 1136A
This long span concrete bridge over the Snoqualmie River was built in 1951. Years of flooding combined with contraction of the river adjacent to the west bank pier dispersed the protective riprap armor. The pier footing was exposed and vulnerable to undermining with further flooding events. Repairs included adding large rock armoring around the exposed footing along with regrading and stabilizing the surrounding river bank slope. The work was performed in summer 2018 by County forces with Flood Control District funds.

Duvall Slough Bridge No. 1136B and Woodinville-Duvall Bridge No. 1136E
These concrete bridges were both built in 1948 and carry traffic along Woodinville-Duvall Road over the flood plain for the Snoqualmie River. The bridges are typically inundated with flood water each winter and the chronic flooding has resulted in settlement of the approach fill at the bridge joints. Repairs were performed to increase the stability of the approach material during flooding events by excavating unsound materials and rebuilding the approach fill with layers of geo-engineered fabric wrap and select backfill. Work was performed in summer 2018 by County forces under a full road closure and with Flood Control District funds.

Projects are underway on the following bridges with active scour/hydraulic issues:

Fish Hatchery Road Bridge No. 61B
Built in 1950, this short-span bridge has creosote treated timber supports for the precast concrete beam and deck units. The bridge conveys SE Fish Hatchery Road over a small creek. It serves the Plum Boat Launch and Lower Snoqualmie Falls recreational areas.

This bridge has been experiencing flooding related damage over the years due to the flooding in the Snoqualmie River and the beaver dams in the upstream wetland area. A flood event in November 2018 caused additional scour damage and subsequently the bridge had to be closed to all vehicles since the south approach was undermined and the creek had undercut and jeopardized the previous scour repair. Repairs will include abutment protection, creek stabilization and installation of riprap. If Flood Control District funding is secured in 2019, construction is proposed for 2021.

North Fork Bridge No. 122i Looking south to the bridge and left bank of the North Fork Snoqualmie River

North Fork Bridge No. 122i
This concrete and steel structure, built in 1951, is located north of the city of North Bend. It carries 428th Avenue SE over the North Fork of the Snoqualmie River. This road serves about 200 homes as well as a variety of commercial and recreational activities including access to Alpine Lakes Wilderness trailheads in the Upper Snoqualmie Valley.

The bridge is threatened by scour and channel migration as the river has eroded its banks and moved across its floodplain upstream of the bridge. The channel migration in recent years has significantly damaged the Shake Mill Left and Right Levees and changed the alignment of the river upstream of the bridge.

The Flood Control District approved funding to place riprap countermeasure to protect the abutment and pier footings of the bridge temporarily until a permanent fix is approved and budgeted. This early-action repair construction was completed in 2017.

The Water and Land Resources Division (WLRD) of King County Department of Natural Resources and Parks is planning further action, in conjunction with the Flood Control District, to repair/stabilize the upstream channel migration. A buried revetment is scheduled for construction in 2019 by WLRD to stabilize the upstream left bank channel migration. In addition, funding was also approved by the Flood Control District for 2019 to mitigate for the scour critical bridge by initiating a feasibility study to mitigate the risk of scour damage to the bridge by retrofitting the existing structure with deep foundations or alternate risk management strategies. The bridge is constricting the hydraulic opening and the study will also include the effect of opening up the channel which may reduce the neighborhood isolation issues in the sole access area.

Tate Creek Bridge No. 122N
Built in 1952, this short-span sole-access bridge which carries SE 73rd Street over Tate Creek has a concrete deck with a timber substructure. The bridge is located north of the city of North Bend.

The hydraulic opening under the bridge is limited. Sediment accumulation at the bridge reduces the hydraulic opening under the bridge, which causes overtopping of the approach roadway and results in the isolation of 200-plus residents in this neighborhood.

A Concept Development Report is proposed to determine the best scope of the project as the bridge is located on a substandard horizontal alignment with additional challenges. The project is in the Flood Control District program and is scheduled to begin in 2023.

E. BRIDGE SEISMIC RETROFITS

Between 1994 and 2008, Roads completed a seismic retrofit program and completed retrofit of 115 vehicular bridges. These bridges were found to have various degrees of seismic vulnerabilities and they were retrofit to a standard that will result in repairable damage following a major earthquake. Roads concluded this program by completing construction in 2008.

F. BRIDGE MAINTENANCE REPAIRS

As bridges age, certain components require repair. The county's maintenance program to repair and replace worn or broken components extends the life of the bridge inventory and may correct immediate safety deficiencies. The goal of the repairs is to remove hazards and provide for preservation of infrastructure in a cost-efficient manner. Common repairs include repairing/replacing cracked or spalled concrete, rotted timber, or corroded steel; deck overlay; guardrail repairs; bridge washing, spot cleaning and painting; or otherwise repairing/replacing deteriorated components of the bridge. Maintenance repairs are a key to bridge preservation in that they can substantially extend the amount of time the bridge can be used before rehabilitation (more extensive repair) or replacement is needed.

Stossel Bridge No. 1023A, bridge maintenance crew is applying an epoxy overlay to the original concrete deck

Deficiencies needing repairs are identified and detailed by the inspecting engineers and tracked in the repair list database. Detailed repair instructions are prepared to guide maintenance crews in scheduling and implementing repairs.

Work Order Prioritization Process

A priority level is assigned when a work order is issued by a bridge inspector. The assigned priority is based on the following table.

Work Order Priority Assignment

Priority	Action	Description
1	Emergency	Clear and present danger! Close all/portion of bridge and begin work immediately!
1.5	ASAP	Work as soon as possible! (within a few weeks)
2	Urgent	Problem may become a danger if left unattended (work within a few months)
2.5	High priority	Add work to schedule in next 1-2 years
3	Attention	Work within next 2-3 years; if left unattended, situation may worsen considerably
3.5	Note	Work is priority maintenance need
4	Routine	Work is priority long-term maintenance need (painting, washing, cleaning, re-decking)
5	Monitor	Monitor condition of deficiency; do not schedule work

This assignment of priority includes factors such as public safety, importance of the route, risk involved in delaying repairs, structural preservation and load-capacity value, road-use profile, and cost effectiveness of repairs. When prioritizing these repairs for the year, all of the backlog work orders are downloaded and prioritized based on individual priorities first. The work orders are then further analyzed by type and location, to identify opportunities to group work orders by type or geographical area. Bundling of work orders allows the maintenance crews to coordinate and sequence their work efficiently considering travel time, material procurement, and equipment mobilization. Scheduling will also consider coordination with other road system programmed major repairs or replacements. Following is a list of a few major projects constructed under this program.

Cedar Grove Bridge No. 3164

Built in 1962, this concrete bridge is located on Cedar Grove Road over the Cedar River and serves as the primary route to King County's Cedar Hills Regional Landfill. The average daily traffic count is 5,200 vehicles per day; approximately one-third of which are heavy trucks. Repairs included replacement of all joints, bridge deck spall repairs, deck overlay with epoxy, repaving the east approach, and adjusting the approach rail height to meet current standards. The work was performed in summer 2018 by County forces under a full road closure.

Kanaskat Overcrossing No. 3037OX
Located near the community of Kanaskat, this concrete bridge was built in 1959. The bridge carries Cumberland-Kanaskat Road over the railroad tracks. A field investigation of unusual pavement cracking revealed that the bridge was built without functioning expansion joints. Repairs included adding an expansion joint to the north end of the bridge and repaving the approach. Work was conducted in summer 2018 by County forces under a full closure. In 2019, work is planned to grind and repave the asphalt overlay over the entire bridge deck.

The bridge maintenance crew is removing cracked deck concrete on Brissack Bridge No. 1116A

Brissack Bridge No. 1116A
This concrete bridge was built in 1951 and is located near North Bend. It carries 436th Avenue SE over the South Fork Snoqualmie River. The bridge has an average daily traffic count of 8,000-plus vehicles per day. Work was performed in summer of 2018 with County forces. The work entailed removal of a section of heavily cracked overlay with approximate dimensions of 11 feet by 6 feet, inspection of underlying concrete bridge deck for soundness, and repaving with a latex modified concrete.

Bridge Washing
In 2018, a program was reinstated to pressure wash steel truss bridges and other vulnerable structures. The intent of the program is to extend the life of the paint and the steel and to remove dirt and debris which would obscure inspection of the bridge. The typical cycle for cleaning will be six years. The following bridges were pressure washed by County forces in 2018: Novelty Bridge No. 404B, Smith Parker Bridge No. 615A, and Flaming Geyser Bridge No. 3024.

VIII. BRIDGE REPLACEMENT PROJECTS

A. BRIDGE SAFETY PROGRAM

The 2019-2020 Bridge Safety Program budget was approved by the County Council in November 2018. This program addresses the urgent needs of replacing the top ranked bridges in the County's bridge inventory given the impacts of the new load-rating criteria, aging inventory, and a decline in overall inventory condition. The bridges that are included in the program are:

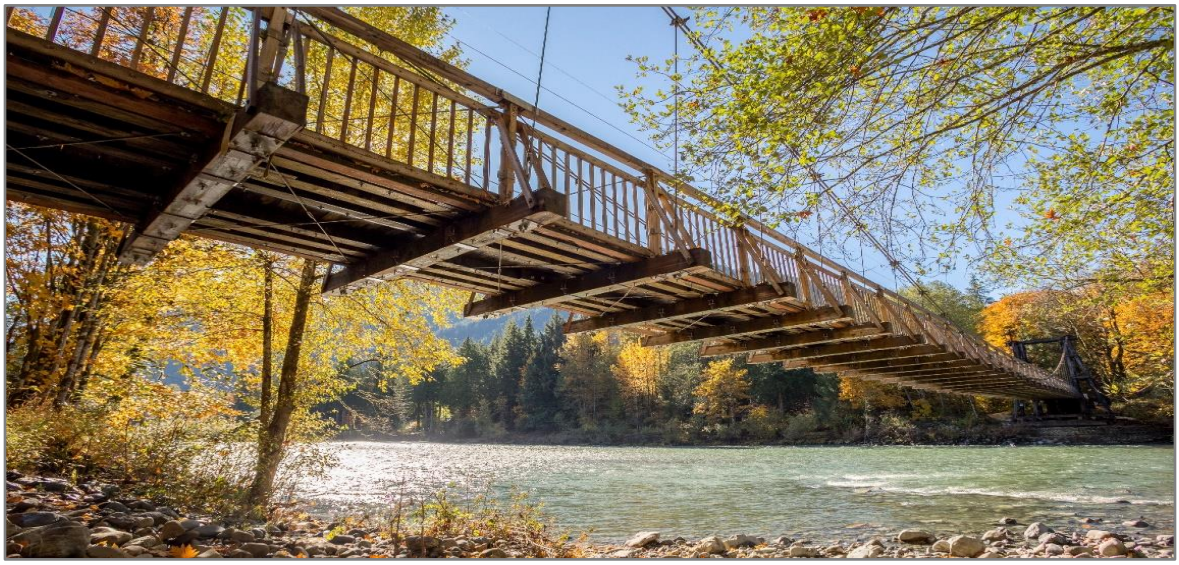
- Baring Bridge No. 509A
- Coal Creek Bridge No. 3035A
- Ames Lake Trestle Bridge No. 1320A
- S. 277th Street Bridge No. 3126
- Upper Tokul Creek Bridge No. 271B

Baring Bridge No. 509A

This bridge carries Index Creek Road, a sole access road, over the Skykomish River. It was originally built in 1930 and was designated as a King County Landmark Bridge by the Landmarks Commission in 1999. Baring Bridge is a one-lane, 340-foot-long, timber suspension bridge with a width less than 9 feet; it is posted for a weight limit of 10 tons and a speed limit of five miles per hour. The bridge provides the only public access to a community of 170 properties including approximately 40 developed sites south of the Skykomish River. It is structurally deficient and has a sufficiency rating of 10.43 out of a possible score of 100. The bridge is past its useful life, and requires frequent, major and costly repairs during which it is removed from service, cutting off access to the community on the south end of the bridge. An estimated average cost of maintaining and repairing the bridge over the past 10 years is approximately $200,000 per year in 2018 dollars.

The bridge does not have adequate capacity to support fire engines used by the adjacent fire district as well as their water tenders used to transport water to areas without hydrants. In addition, most three-axle single-unit trucks are too heavy to use the structure. The replacement of the bridge will ensure unrestricted access for firefighting equipment as well as other types of common service and delivery vehicles.

In addition to the limited load capacity, other deficiencies include the narrow deck width, one-lane two-way traffic, substandard rails, rotted timber caps, and scour issues. Given the extent of the deficiencies, a replacement project is warranted. In July 2018, a consultant contract was executed to perform a Bridge Type, Size, and Location (TS&L) analysis, which includes a recommendation of a preferred alternative and preparation of 30 percent design on the preferred alternative.



Baring Bridge No. 509A, looking to the south tower, deck and stringers from the bank of the Skykomish River

Coal Creek Bridge No. 3035A
The bridge is located near the city of Black Diamond along SE Lake Walker Road at Coal Creek, approximately 1.5 miles southeast of Veazie-Cumberland Road SE. The bridge provides sole access to approximately 70 homes in the Walker Lake neighborhood and a Department of Fish and Wildlife public boat launch at the lake. SE Lake Walker Road is a County-designated snow/ice route.

The bridge is 41 feet long and 18 feet wide. The steel girders and floor beams of this bridge are over 100 years old; they were originally in place at another bridge location in 1912 and moved to this site in 1958. The bridge is fracture-critical and the floor beams have extensive corrosion and section loss. Due to the condition of the floor beams, the bridge is being inspected every six months. The bridge is load restricted with a reduced advisory speed limit of 15 miles per hour. In addition to the severely corroded steel and limited load capacity, other deficiencies include deteriorating creosote timber piles, rotten timber backwall planks, substandard rails, and downstream bank erosion.

Inspector measuring steel loss on the floor beams of Coal Creek Bridge No. 3035A

Roads was awarded federal funding in November 2017 and funding was obligated and authorized in May 2018 to proceed with design for the project. A consultant contract for design was executed in 2018 and a kickoff and chartering meeting was held in December 2018.

Ames Lake Trestle No. 1320A
Located west of rural Carnation, the bridge carries Ames Lake Carnation Road NE over Ames Creek. This timber trestle was built in 1924; it is approximately 168 feet long with a width less than 25 feet. The average daily traffic volume is 1,800 vehicles per day. It is posted with load restrictions and has a reduced advisory speed limit of 25 miles per hour. In addition to the limited load carrying capacity, the width, bridge rail system, and roadway approach horizontal alignment were designed and built to standards that are outdated and inadequate for current needs. The 94-year-old timber substructure is beyond its useful life and there aren't cost-effective solutions for repairing or rehabilitating that could provide the necessary additional load capacity. Procurement of a design consultant will occur in 2019.

S. 277th Street Bridge No. 3126
This short-span bridge was built in 1950 and carries S. 277th Street over Mullen Slough, connecting I-5 to State Route 167 near Auburn, Kent, and Federal Way. It was widened in 1973 to carry a four-lane principal arterial roadway. The 2018 traffic count has traffic volume of approximately 23,000 vehicles per day, including approximately 2,600 trucks per day.

The bridge is 16 feet long and 64 feet wide measured out to out. It has timber abutments and precast concrete tub unit girders and deck. The bridge is load restricted and unable to support certain types of fire engines used by the adjacent fire districts, along with typical full-size garbage trucks, dump trucks, and concrete mixers.

The 68 year old structure is approaching the end of its useful life, the narrow hydraulic opening is constricting the water flow, and the bridge abutments are constructed of creosote timber, which can leach into the water and impact water quality, fish and wildlife. It is not feasible to repair or rehabilitate the bridge to meet current standards for structural, geotechnical, hydraulic and environmental requirements. Procurement of a design consultant will occur in 2019.

Inspector measuring the scoured exposed footing at Upper Tokul Creek Bridge No.271B

Upper Tokul Creek Bridge No. 271B
This bridge was built in 1965; it carries Tokul Road SE over Tokul Creek just north of the City of Snoqualmie, providing the sole access for approximately 50 homes, and one access point for logging operations. The bridge is 107 feet long and 22.5 feet wide with a 2018 traffic volume of 417 vehicles per day.

The bridge has a constricted hydraulic opening and a foundation constructed of creosote timbers on concrete spread footings. Seasonal high flows on Tokul Creek cause scour under the footings at the intermediate piers.

The bridge is load restricted and is unable to support certain types of fire engines used by the adjacent fire districts, including water tenders used to transport water to areas without hydrants. Typical full-size garbage trucks, dump trucks, and concrete mixers are also too heavy to use the bridge. Procurement of a design consultant will occur in 2019.

B. OTHER REPLACEMENT PROJECTS

Berrydale Overcrossing No. 3086OX

This trestle was constructed in 1931 of creosote-treated timber. It carries Kent-Black Diamond Road, which is a high-volume arterial, over the BNSF Railroad corridor. It has a posted speed limit of 40 miles per hour and a high daily traffic count of 7,293 vehicles per day. The bridge deck is very narrow (24 feet from curb to curb), with no shoulders or sidewalk. It also has substandard rails and substandard sight distances due to the vertical curve of the roadway. The bridge is structurally deficient with a sufficiency rating of 21.84 out of a possible score of 100 based on the National Bridge Inspection Standards. The bridge is past its useful service life, and requires frequent, major and costly repairs.

UBIT Inspection on Berrydale Overcrossing Bridge No. 3086OX

Although full funding for replacement of the bridge and its approach roadway is uncertain, because of the criticality of this corridor, initial preliminary design work was funded in the 2017-2018 Roads Operating Budget. The project is complex as it involves coordination with BNSF Railway, a difficult vertical curve sight distance issue, and construction impact to the traveling public. Coordination began in 2017-2018 with BNSF Railway and the completion of the TS&L report for a replacement structure is planned for 2019-2020.

Fifteen Mile Creek Bridge No. 493C

This bridge was originally built in 1932. This 38-foot-long timber bridge carries SE May Valley Road, which is a high-volume arterial, over Fifteen Mile Creek. In 1973, the bridge was rehabilitated which consisted of replacing the timber deck, stringers and caps. The replaced timber members have developed weather checks and areas of rot. It has a high daily traffic count of 5,202 vehicles per day. The deck is narrow, with a width of 26 feet (from curb to curb); it also has substandard rails and a timber sidewalk. The hydraulic opening is restricted at the bridge causing the channel and bridge supports to experience scour during flooding events. Channel-bank erosion is also evident. The bridge superstructure is shored with helper stringers to keep it serviceable and avoid posting the bridge with load restrictions. The bridge is structurally deficient and has a sufficiency rating of 7.0 out of a possible score of 100 based on the National Bridge Inspection Standards. The bridge is well past its useful service life and requires frequent, major and costly repairs to keep it in service.

Key deficiencies of this bridge include the constricted hydraulic opening and supports that are located in the creek and collect flood debris. The bridge is recommended for replacement. Flood Control District funding is currently programmed. A preliminary engineering design report began in 2018 and the Concept Development Report will be completed in 2019.

GLOSSARY OF BRIDGE TERMINOLOGY

Abutment–a substructure supporting the end of a single span or the extreme end of a multi-span superstructure and, in general, retaining or supporting the approach fill.

Bascule–a moveable bridge with a counterweight that continuously balances the span, or "leaf," throughout the entire upward swing, providing clearance for boat traffic.

Backwall–the topmost portion of an abutment functioning primarily as a retaining wall to contain approach roadway fill.

Bent–a supporting unit of the beams of a span made up of one or more columns or column-like members connected at their topmost ends by a cap, strut, or other horizontal member.

Bracing–a system of tension or compression members, or a combination of these, connected to the parts to be supported or strengthened by a truss or frame. It transfers wind, dynamic, impact, and vibratory stresses to the substructure and gives rigidity throughout the complete assemblage. Can also refer to diagonal members that tie two or more columns of a bent together.

Cap–the horizontally oriented, topmost piece or member of a bent serving to distribute the beam loads upon the columns and to hold the beams in their proper relative positions.

Chord–in a truss, the uppermost and lowermost longitudinal members extending the full length of the truss.

Copper naphthenate–a green salt, soluble in benzene, it is used as an insecticide and a wood preservative, but harmless to plants.

Compression–a type of stress involving pressing together; tends to shorten a member; opposite of tension.

Creosote–oil distilled from coal-tar used as a wood preservative. Because it is harmful to fish, Washington Department of Fish and Wildlife (WDFW) has banned the use of creosote-treated wood in or near shoreline areas.

Concrete Pop outs-Typically porous, absorptive, moisture-susceptible aggregates within the concrete mix. If these aggregates become saturated by water ingress, they can expand and pop-out the cement matrix covering.

Corbel–a bracket of brick or concrete that juts out of a wall to support a structure above it.

Deck–portion of a bridge that provides direct support for vehicular and pedestrian traffic.

Dywidag–bar anchor system used for a variety of applications which include slope stabilization and counteraction of uplift forces.

Elastomeric pads–rectangular pads made of neoprene, found between the sub- and superstructure that bear the entire weight of the superstructure. Elastomeric pads can deform to allow for thermal movements of the superstructure.

Endwall–the wall located directly under each end of a bridge that holds back approach roadway fill. The endwall is part of the abutment.

Floor beam–A beam used in a bridge floor at right angles to the direction of the roadway, to transfer loads to bridge supports.

Fracture critical member–a member in tension or with a tension element whose failure would probably cause a portion of or the entire bridge to collapse.

Functionally obsolete–a function of the geometrics of the bridge in relation to the geometrics required by current design standards.

Gabion basket–a cage, cylinder, or box filled with rocks, concrete, or sometimes sand and soil for use in civil engineering, road building, military applications and landscaping.

Girder–the main horizontal support beam of a structure that supports smaller beams. Girders often have an I-beam cross section for strength, but may also have a box shape, Z shape, or other form.

Pier–a structure comprised of stone, concrete, brick, steel, or wood that supports the ends of the spans of a multi-span superstructure at an intermediate location between abutments. A pier is usually a solid structure, as opposed to a bent, which is usually made up of columns.

Pile–a rod or shaft-like linear member of timber, steel, concrete, or composite materials driven into the earth to carry structure loads into the soil.

Pin-pile–a series of two-inch-diameter pipes driven in a line into the ground to support the timber planks of a small retaining wall, typically used to prevent erosion under a bridge abutment.

Post or column–a member resisting compressive stresses, in a vertical or near-vertical position.

Riprap–rock or other material used to armor shorelines, streambeds, bridge abutments, pilings and other shoreline structures against scour, water or ice erosion.

Rutting–a depression or groove worn into a road or path by the travel of wheels.

Scour–erosive action of removing streambed material around bridge substructure due to water flow. Scour is of particular concern during high-water events.

Short-span bridge–these bridges have a span of 20 feet or less and are typically supported by timber piles or shallow concrete footings.

Soffit–the underside of the bridge deck or sidewalk.

Spall–a concrete deficiency wherein a portion of the concrete surface is popped off from the main structure due to the expansive forces of corroding steel rebar underneath. This is especially common on older concrete bridges.

Stringer–a longitudinal beam (less than 30 feet long) supporting the bridge deck and, in large bridges, framed into or upon the floor beams.

Structurally deficient–bridges are considered structurally deficient if significant load-carrying elements are found to be in poor or worse condition due to deterioration and/or damage, or the adequacy of the waterway opening provided by the bridge creates flooding over the bridge deck and adjacent roadway, causing significant traffic interruptions.

Sufficiency rating–the sufficiency rating is a numeric value from 100 (a bridge in new condition) to 0 (a bridge incapable of carrying traffic). The sufficiency rating is the summation of four calculated values: Structural Adequacy and Safety, Serviceability and Functional Obsolescence, Essentiality for Public Use, and Special Reductions.

Substructure–the abutment, piers, grillage, or other structure built to support the span or spans of a bridge superstructure. Includes abutments, piers, bents, and bearings.

Superstructure–the entire portion of a bridge structure that primarily receives and supports traffic loads and, in turn, transfers the reactions to the bridge substructure; usually consists of the deck and beams or, in the case of a truss bridge, the entire truss.

Tension–type of stress involving an action that pulls apart.

Trestle–a bridge structure consisting of beam spans supported upon bents. Trestles are usually made of timber and have numerous diagonal braces, both within each bent and from bent to bent.

Wheel-rail–a timber curb fastened directly to the deck, most commonly found on all timber bridges.

Wingwall–walls that slant outward from the corners of the overall bridge that support roadway fill of the approach.

APPENDICES TO THE 2018 ANNUAL BRIDGE REPORT

Appendix One – Bridge Inventory

Appendix Two – Load-Limited or Restricted Bridges

Appendix Three – Painted Bridges

Appendix Four – Landmark Bridges

Appendix One - Bridge Inventory

**Italic text indicates short span bridge (20 feet or less in length) and pedestrian structures*

No.	Structure ID	Bridge Number	Bridge Name	County Council District	Sufficiency Rating	FO/SD	Width	Length	Year Built	Year Rebuilt	Facilities Carried	Feature Intersected	Location	Jurisdiction
1	08856700	1384B	15 MILE CREEK	9	94.14		28	63	2013	0	240TH AVE SE	FIFTEEN MILE CREEK	0.3 MI S OF SR-202	
2	08856600	952D	195TH UNDERCROSSING	3	98.88		49	46	2012	0	195TH AVE NE	TRIBUTARY	2.7 MI E OF SR-202	
3	*08394200*	*3060*	*208TH AVE SE*	*7*	*57.47*		*26.8*	*16*	*1951*	*0*	*208TH AVE SE*	*DRAINAGE DITCH*	*JCT SE 448TH ST*	
4	*08410300*	*3049*	*284 AVE SE BRIDGE*	*9*	*50.86*		*22.8*	*20*	*1950*	*0*	*284TH AVE SE*	*BOISE CREEK*	*0.5 MI S OF SE 456TH ST*	
5	08779800	344B	308TH AVE SE	3	87.45		23.5	33	2008	0	308TH AVE SE	PATTERSON CREEK	0.2 MI N OF SR-202	
6	*08020100*	*228F*	*312 AVE SE*	*3*	*71.27*		*23*	*16*	*1924*	*1950*	*SNOQUALMIE RVR RD*	*DRAINAGE DITCH*	*0.2 MI N OF SE 24TH ST*	
7	07962700	5044	4 CK RANCH	9	79.38		28	42	1983	0	229TH DRIVE SE	ISSAQUAH CREEK	0.5 MI S OF SE MAY VLY RD	
8	08066000	1320A	AMES LAKE TRESTLE	3	32.44	SD	24.9	168	1924	2003	AMES LK CARNATION	AMES LAKE CREEK	0.2 MI S OF W SNOQ RV RD	
9	08813500	493B	BANDARET	9	95.64		40	101	2009	0	SE MAY VALLEY RD	ISSAQUAH CREEK	0.4 MI W OF ISSQ-HOBART RD	
10	07979400	509A	BARING BRIDGE	3	10.43	SD	8.3	340	1930	1952	NE INDEX CK RD	SKYKOMISH RIVER-S FORK	0.1 MI S OF SR-202	
11	*08082900*	*1056B*	*BEAR CREEK*	*3*	*66.31*		*37*	*20*	*1915*	*0*	*WOODINVILLE-DUVALL*	*BEAR CREEK*	*0.2 MI S BOTHELL WAY*	
12	*08263100*	*333A*	*BEAR CREEK*	*3*	*21.58*		*22.8*	*20*	*1950*	*0*	*NE 133RD ST*	*BEAR CREEK*	*0.2 MI E BEAR CRK*	
13	*08407400*	*480A*	*BEAR CREEK*	*3*	*15.74*		*22.8*	*20*	*1951*	*0*	*NE 116TH ST*	*BEAR CREEK*	*0.1 MI E AVONDALE*	
14	08403400	52D	BEAR CREEK	3	83.6		26	45	1950	0	AVONDALE PL NE	BEAR CREEK	0.3 MI N OF NE 116TH ST	
15	08623800	52C	BEAR CREEK	3	84		66	123	1995	0	AVONDALE RD	BEAR CREEK	3.0 MI N REDMOND	
16	08618600	52E	BEAR CREEK BRIDGE	3	96.94		66	67	1995	0	AVONDALE RD	BEAR CREEK	0.5 MI N OF NE 116TH	
17	*08644500*	*55*	*BEAR CREEK RANCHETTE PED*	*3*	*PED*		*6*	*52*	*1979*	*0*	*PED PATH AT 194TH*	*COTTAGE LAKE CREEK*	*0.2 MI E AVONDALE RD*	
18	08481100	3086OX	BERRYDALE OX	7	21.84	SD	23	105	1931	1968	KENT-BLK DIAMOND RD	BNSF RAILROAD	AT SE 291ST	
19	08481400	3087	BIG SOOS CREEK	7	57.85	FO	24	36	1931	0	KENT-BLK DIAMOND RD	BIG SOOS CREEK	AT SE 288TH ST	
20	08608600	3220	BLACK NUGGET BRIDGE	3	79.83		38	32	1992	0	BLACK NUGGET RD	N FORK ISSAQUAH CREEK	0.2 MI N ISSQ-FALL RD	
21	*08336800*	*3052*	*BOISE CREEK*	*9*	*68.65*		*24*	*19*	*1927*	*1959*	*268TH AVE SE*	*BOISE CREEK*	*0.2 MI S WARNER AVE*	
22	*08403200*	*3051*	*BOISE CREEK*	*9*	*69.35*		*18*	*16*	*1927*	*0*	*276TH AVE SE*	*BOISE CREEK*	*0.3 MI S WARNER AVE*	
23	08464400	3055A	BOISE X CONNECTION	9	20.66	SD	21	37	1956	0	SE MUD MT DAM RD	BOISE CREEK	0.4 MI S OF SR-410	
24	08297200	1116A	BRISSACK BRIDGE	3	74.97	FO	26	266	1971	0	436TH AVE SE	S FORK SNOQUALMIE RV	0.8 MI S OF I-90	
25	*08018300*	*249C*	*C.W. NEAL ROAD*	*3*	*57.26*		*22.8*	*20*	*1951*	*0*	*CW NEAL RD*	*DRAINAGE DITCH*	*0.3 MI S OF SR-203*	
26	*08111000*	*249B*	*C.W. NEAL ROAD*	*3*	*37.69*		*22.8*	*16*	*1951*	*0*	*CW NEAL RD*	*DRAINAGE DITCH*	*1.5 MI S OF SR-203*	
27	08756400	249A	C.W. NEAL ROAD	3	84.44		25	30	2007	0	CW NEAL RD	DRAINAGE DITCH	1.0 MI S OF SR-203	
28	08638200	5028	CARNATION FARM RD SLOUGH	3	98.78		34	40	1998	0	NE CARNATION FARM	SLOUGH	0.2 MI W OF SR-203	
29	08633200	5024	CARNATION FARM ROAD	3	95.77	FO	34	60	1997	0	NE CARNATION FARM	SLOUGH	0.6 MI W OF SR-203	
30	*08378200*	*999X*	*CASCADE SCENIC HWY*	*3*	*64.49*		*22.8*	*22*	*1950*	*0*	*CASCADE SCENIC HWY*	*MILLER RIVER SLOUGH*	*1.3 MI SE OF SR-2*	
31	08430800	3164	CEDAR GROVE	9	74.45	FO	26	180	1962	0	CEDAR GROVE RD	CEDAR RIVER	0.2 MI NE OF SR-169	
32	08712200	3165	CEDAR MOUNTAIN	9	99.07		50	291	2003	0	SE JONES ROAD	CEDAR RIVER & TRAIL	0.1 MI E OF SR-169	
33	*08712300*	*3165A*	*CEDAR MT RAMP*	*9*	*65.48*		*20*	*19*	*2003*	*0*	*CEDAR MT PLACE SE*	*CEDAR RIVER TRAIL*	*0.1 MI E OF SR-169*	
34	08222700	427I	CHERRY CREEK BRIDGE	3	70.09	FO	26	101	1960	0	NE CHERRY VALLEY RD	CHERRY CREEK	2.6 MI E OF SR-203	
35	08088100	267X	CHERRY VALLEY TRESTLE	3	41.64	SD	24	181	1951	0	MT VIEW RD NE	CHERRY CREEK	0.5 MI N OF CHERRY RD	
36	08340400	3017	CIRCLE WATER BR	7	56.56	FO	26	47	1926	1965	SE GREEN VALLEY RD	BURNS CREEK	4.1 MI E OF SR-18	
37	*08205800*	*909B*	*CLOUGH CREEK*	*3*	*20.21*		*23.1*	*16*	*1951*	*0*	*415TH AVE SE*	*CLOUGH CREEK*	*1.6 MI S OF JCT I-90*	
38	*08420000*	*1086B*	*COAL CREEK*	*3*	*60.58*		*22.8*	*16*	*1950*	*0*	*378TH AVE SE*	*COAL CREEK*	*W SNOQ VALLEY RD @ W-D RD*	
39	08448600	3035A	COAL CREEK	9	11.68	SD	18	41	1958	0	LAKE WALKER RD	COAL CREEK	1.5 MI SE VEAZIE-CUMBLND RD	
40	*08244400*	*240A*	*COTTAGE LAKE CR*	*3*	*28.61*		*22.8*	*18*	*1951*	*0*	*BEAR CREEK ROAD*	*COTTAGE LAKE CREEK*	*0.1 MI E AVONDALE RD*	
41	08234200	52F	COTTAGE LAKE CREEK	3	94.02		40	21	1987	0	NE 159TH ST	COTTAGE LAKE CREEK	0.1 MI W OF AVONDALE RD	
42	08412100	5042	COTTAGE LAKE CREEK	3	96.66		0	35	1975	0	NE 130TH ST	COTTAGE LAKE CREEK	0.1 MI W AVONDALE RD	
43	08633300	52H	COTTAGE LAKE CREEK	3	93.09		66	48	1994	0	AVONDALE ROAD NE	COTTAGE LAKE CREEK	0.1 MI S OF NE 132ND	
44	08826900	52B	COTTAGE LAKE CREEK	3	91.2		28	40	2010	0	NE 165TH STREET	COTTAGE LAKE CREEK	0.5 MI W OF AVONDALE	
45	08483400	3085	COVINGTON	9	62.28	FO	24	45	1929	0	COVINGTON-SWYR RD	JENKINS CREEK	0.7 MI SE OF SR-516	
46	*08234700*	*3082*	*COVINGTON CREEK*	*7*	*56.62*		*24*	*19*	*1915*	*0*	*AUB-BLK DIAMOND RD*	*COVINGTON CREEK*	*0.3 MI N OF SE LK HOLM*	
47	*08240200*	*3084*	*COVINGTON CREEK*	*7*	*69.18*		*28*	*20*	*1915*	*1934*	*AUB-BLK DIAMOND RD*	*COVINGTON CREEK*	*JCT SE 322ND ST*	
48	*08638100*	*3085P*	*COVINGTON WAY PED BRIDGE*	*9*	*PED*		*8*	*67*	*1998*	*0*	*PEDESTRIAN PATHWAY*	*JENKINS CREEK*	*350' SE OF WAX ROAD*	
49	08259200	364A	DEEP CREEK	3	44.42	SD	18	109	1965	0	NORTH FORK RD SE	DEEP CREEK	13.7 MI N OF I-90	

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No.	Structure ID	Bridge Number	Bridge Name	County Council District	Sufficiency Rating	FO/SD	Width	Length	Year Built	Year Rebuilt	Facilities Carried	Feature Intersected	Location	Jurisdiction
50	08182000	3097	DORRE DON WAY	9	63.88		22.8	20	1945	1959	DORRE DON WAY	UNNAMED TRIBUTARY	1.0 MI SE OF SR-169	
51	08164300	1136A	DUVALL BRIDGE	3	69.7	FO	24	1182	1951	2002	WOODINVILLE-DUVALL	SNOQUALMIE RIVER	0.4 MI W OF SR-203	1/2 Duvall
52	08180300	1136B	DUVALL SLOUGH	3	63.98	SD	24	639	1948	0	WOODINVILLE DUVALL	DUVALL SLOUGH	0.6 MI W OF SR-203	
53	08059300	952C	E REDMOND	3	68.78		22	20	1913	0	196TH AVE NE	EVANS CREEK	0.5 MI N OF SR-202	
54	08718800	617B	EDGEWICK	3	75.92		34	213	2004	0	468TH AVE SE	S FORK SNOQUALMIE RV	1.0 MI S OF I-90	
55	08729400	3166A	ELLIOTT BIKE/PED XING	9	61.18		47	18	2005	0	154TH AVE SE	BIKE/PED TRAIL	0.6 MI N OF SR-169	
56	08729300	3166	ELLIOTT BRIDGE	9	68.56	FO	38	406	2005	0	154TH PLACE SE	CEDAR RIVER	0.1 MI N OF SR-169	
57	08205300	180A	EVANS CREEK	3	49.77		20	20	1917	1953	NE 50TH ST	EVANS CREEK	0.1 MI SW OF SR-202	
58	08213200	578A	EVANS CREEK	3	66.65		22.8	20	1950	0	REDMOND-FALL CITY	EVANS CREEK	0.5 MI W 204TH PL NE	
59	08060600	952B	EVANS CREEK	3	65.35		22	32	1913	0	196TH AVE NE	EVANS CREEK	0.9 MI N OF SR-202	
60	08856500	952A	EVANS CREEK	3	95.87		65	69	2013	0	NE UNION HILL RD	EVANS CREEK	2.5 MI E OF SR-202	
61	08194100	493C	FIFTEEN MILE CREEK	9	7	SD	28	40	1932	1973	SE MAY VALLEY RD	FIFTEEN MILE CREEK	0.2 MI W ISSQ- HOBART RD	
62	08194700	1384A	FIFTEEN MILE CREEK	9	39.79	SD	24	64	1949	0	ISSQ-HOBART RD SE	FIFTEEN MILE CREEK	0.2 MI N TIGER MT RD	
63	08446900	186J	FIRE STATION	3	77.92		26	16	1915	0	PRESTON FALL CITY	PED TRAIL	0.5 MI SE OF I-90	
64	08320500	61B	FISH HATCHERY	3	CLOSED		22.8	20	1950	0	SE FISH HATCHERY R	DRAINAGE DITCH	0.8 MI SW OF SR-202	
65	08598200	3024	FLAMING GEYSER	9	86.97		34.5	362	1991	0	228 PLACE SE	GREEN RIVER	0.2 MI E OF GREEN VAL RD	
66	08434900	2605A	FOSS RIVER	3	38.49	FO	14.5	120	1951	0	FOSS RIVER RD	FOSS RIVER	0.8 MI SE SR-2, MP 50.6	
67	08596600	359A	GRANITE CREEK	3	79.5		14	30	1967	0	PRIVATE RD	GRANITE CREEK	6.0 MI E OF I-90	
68	08585100	3216	GREEN RIVER	7	52.01	FO	48	250	1990	0	83RD AVE S	GREEN RIVER	0.5 MI E OF SR-167	1/2 Kent
69	08224700	3032	GREEN RIVER GORGE	9	72.74	FO	14	437	1914	1991	FRANKLIN RD	GREEN RIVER	4.0 MI E OF SR-169	
70	08256500	3020	GREEN VALLEY ROAD	7	50.29		22.8	20	1950	0	SE GREEN VALLEY RD	DRAINAGE DITCH	5.5 MI E OF SR-18	
71	08274300	3022	GREEN VALLEY ROAD	7	51.29		22.8	20	1954	0	SE GREEN VALLEY RD	DRAINAGE DITCH	6.7 MI E OF SR-18	
72	08623500	3050A	GREENWATER	9	82.3		19	18	1964	1996	SE 496TH PL	PACKARD CREEK	0.3 MI NE OF SR-410	
73	08105200	3050B	GREENWATER	9	57.52	FO	11	110	1973	0	DRIVE UHLMAN RD E	GREENWATER RIVER	0.2 MI NE OF SR-410	
74	08729200	5003	HARRIS CREEK BRIDGE	3	95.94		34	80	2005	0	KELLY RD NE	HARRIS CREEK	2.0 MI NE SR-203	
75	08092700	257Z	HORSESHOE LAKE CREEK	3	51.54		16.8	18	1930	1969	310TH AVE NE	HORSESHOE LAKE CREEK	1.0 MI W OF SR-203	
76	08300200	83D	ISSAQUAH CREEK	9	64.3	FO	26	42	1962	0	CEDAR GROVE RD	ISSAQUAH CREEK	1.4 MI E OF SR-169	
77	08302300	83B	ISSAQUAH CREEK	9	76.43		22.8	40	1952	0	SE 156TH ST	ISSAQUAH CREEK	1.5 MI E OF SR-169	
78	08330500	1741A	ISSAQUAH CREEK	9	48.25	SD	22.8	54	1951	1974	252 AVE SE ISSAQ	ISSAQUAH CREEK	0.5 MI W SR-203	
79	08612200	3099A	JEM CREEK	9	79.35		25	20	1989	0	SE 206TH STREET	JEM CREEK	0.5 MI E OF SR-169	
80	08240700	3184	JUDD CREEK	8	43.07	FO	24	370	1953	0	VASHON HWY SW	JUDD CREEK	0.1 MI S OF SW QTRMSTR DR	
81	08116300	3036	KANASKAT ARCH	9	67.91		24	220	1918	1955	CUMBERLND-KANASKAT	GREEN RIVER	5.1 MI E OF SR-169	
82	08116600	3037OX	KANASKAT OXING	9	55.58	FO	22.5	157	1959	0	CUMBERLND-KANASKAT	BNSF RAILROAD	4.8 MI E OF SR-169	
83	08209800	5008	KELLY RD CHERRY CREEK	3	75.4		27	72	1947	2004	KELLY RD NE	CHERRY CREEK	4.2 MI E OF SR-203	
84	08302400	5007	KELLY ROAD	3	68.68		27	16	1959	0	KELLY RD NE	DRAINAGE DITCH	1.0 MI N OF NE LK JOY RD	
85	08623600	896B	KERRISTAN BRIDGE	3	71.2	FO	14	20	1996	0	364TH AVE SE	RAGING RIVER	6.8 MI E OF ISSQ-HOBART RD	
86	08623700	896C	KERRISTAN BRIDGE	3	71.08	FO	14	32	1996	0	364th AVE SE	RAGING RIVER	6.9 MI E OF ISSA-HOBART RD	
87	08883100	896D	KERRISTAN BRIDGE	9	93.6		45	21	2014	0	KERRISTON ROAD	RAGING RIVER	5.0 MI E OF ISSQ-HOBART RD	
88	08402300	1086A	KIMBALL CREEK	3	72.64		25	43	1929	1965	SE 80TH ST	KIMBALL CREEK	0.2 MI S SE 80TH ST	
89	08414800	99L	KIMBALL CREEK	3	48.55	FO	10	45	1960	1973	SE 76TH ST	KIMBALL CREEK	0.5 MI W OF SR-202	
90	08418400	891A	KIMBALL SUPER SPAN	3	99.31		0	25	1971	0	384TH AVE SE	KIMBALL CREEK	0.4 MI N SE N0.BEND WY	
91	08596700	359B	LAKE DOROTHY BRIDGE	3	85.8		26	339	1963	0	SE LAKE DOROTHY RD	M FORK SNOQUALMIE RV	5.1 MI E 468 AVE	
92	08839400	359U	LAKE DOROTHY SLIDE	3	86.23		14.5	41	2011	0	SE LAKE DOROTHY RD	SLIDE DEPRESSION	2.0 MI E OF NORTH BEND	
93	08478800	5034A	LAKE JOY BRIDGE	3	74.76		23	16	1950	0	346TH PL NE	LAKE JOY CREEK	2.3 MI E OF SR-203	
94	08007200	3109B	LAKE YOUNGS WAY	9	68.12		38.8	16	1969	0	SE LK YOUNGS WAY	SOOS CREEK	0.3 MI NE OF SE 208TH	
95	08256100	3075	LANDSBURG BR.	9	78.74	SD	38	130	1982	0	LANDSBURG ROAD	CEDAR RIVER	1.5 MI N KENT KANGLY RD	
96	08608700	3096OX	MAPLE VALLEY OVERCROSSING	9	58.57	SD	0	24	1994	0	SE 216TH WAY	KING COUNTY PARK TRAIL	0.5 MI E OF SR-169	
97	08874600	999L	MARTIN CREEK	3	78.09		14	95	1959	0	OLD CASCADE HWY	MARTIN CEEK	0.2 MI S OF SR-2	
98	08014000	3202	MAXWELL ROAD	9	27.03		22.8	16	1952	0	225TH AVE SE	CATTLE UX	0.6 MI N OF SR-169	
99	08016200	3099	MAXWELL ROAD	9	60.42		22.8	20	1939	1951	225TH AVE SE	GEM CREEK	0.5 MI NE OF SR-169	

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100	08124200	593C	MAY CREEK	9	70.38		22.6	16	1951	0	164TH AVE SE	MAY CREEK	0.5 MI N OF SR-900	
101	08823400	5005	MAY CREEK	9	96.15		40	36	2010	0	SE MAY VALLEY ROAD	MAY CREEK	0.1 MI E OF SR-900	
102	08378400	999W	MILLER RIVER BR	3	CLOSED	SD	16.5	228	1922	0	OLD STVNS PASS HWY	MILLER RIVER	1.5 MI SE OF SR-2	
103	08604000	506A	MONEY CREEK BRIDGE	3	76.89		14	220	1958	0	NE MONEY CREEK RD	MONEY CREEK	2.0 MI S OF SR-2	
104	08779200	2550A	MT. SI BRIDGE	3	66.69		34	366	2008	0	SE MT. SI RD	M FORK SNOQUALMIE RV	0.4 MI N OF SE N BEND	
105	08718900	124C	NE 124 ST	3	92.96		62	128	2004	0	NE 124TH ST	SAMMAMISH RIVER	2.3 MI E OF I-405	
106	08644400	124B	NE 124TH ST BRIDGE	3	90.96		65	20	1999	0	NE 124TH ST	DRAINAGE DITCH	0.8 MI E OF 132ND PL	
107	08199300	3014	NEELY BRIDGE	7	78.43		28	240	1970	0	SE AUB-BLK DIA RD	GREEN RIVER	0.2 MI NE OF SR-18	
108	08019600	3188	NEWAUKUM CREEK	9	78.74		28	24	1927	0	SE 400TH ST	NEWAUKUM CREEK	1.0 MI E 212TH AVE SE	
109	08113600	3063	NEWAUKUM CREEK	9	65.76	FO	22.8	40	1950	0	SE 416TH ST	NEWAUKUM CREEK	0.6 MI W SE 416TH ST	
110	08169400	3071	NEWAUKUM CREEK	9	54.9		24	40	1950	0	SE 424TH ST	NEWAUKUM CREEK	0.5 MI W OF SR-169	
111	08172400	3069	NEWAUKUM CREEK	9	89.54		26	24	1939	1957	248 TH AVE SE	NEWAUKUM CREEK	JCT SE 433RD ST	
112	08188900	3064	NEWAUKUM CREEK	9	85.63	FO	26.5	47	1928	1997	SE 424TH ST	NEWAUKUM CREEK	0.8 MI W OF 244TH SE	
113	08190200	3066	NEWAUKUM CREEK	9	84.24		28	49	1927	1955	236TH AVE SE	NEWAUKUM CREEK	0.5 MI N OF SR-164	
114	08235300	3041	NEWAUKUM CREEK	9	88.68		27.7	70	1958	0	SE 416TH ST	NEWAUKUM CREEK	0.9 MI E OF SR-169	
115	08299200	3068	NEWAUKUM CREEK	9	63.16	FO	21.6	32	1928	0	244TH AVE SE	NEWAUKUM CREEK	0.2 MI N OF SE 436TH	
116	08813800	3043	NEWAUKUM CREEK	9	97.5		32	40	2009	0	SE 416TH ST	NEWAUKUM CREEK	0.6 MI E of SR-169	
117	08839300	3042	NEWAUKUM CREEK	9	98.49		37.3	41	2011	0	SE 416TH ST	NEWAUKUM CREEK	0.8 MI E SR-169	
118	08853800	3040A	NEWAUKUM CREEK	9	98.31		38	34	2012	0	284TH AVE SE	NEWAUKUM CREEK	0.3 MI N OF SE 416TH	
119	08460200	122K	NORMAN BRIDGE	3	79.05		30	390	1984	0	428TH AVE SE	M FORK SNOQUALMIE RV	0.6 MI S OF S REINIG	
120	08461200	122I	NORTH FORK	3	31.9	SD	22	252	1951	0	428TH AVE SE	N FORK SNOQUALMIE RV	0.1 MI S SE REINIG	
121	08651300	404B	NOVELTY	3	86.66		39.4	623	2000	0	NE 124TH ST	SNOQUALMIE RIVER	0.5 MI W OF SR-203	
122	08865200	902	NOVELTY HILL CROSSING	3	OTHER		38	120	2013	0	WILDLIFE CORRIDOR	NOVELTY HILL RD	2.5 MI N OF SR-202	
123	07962900	5043	OLD NORTH BEND WAY	3	81.01		52	92	1941	0	NORTH BEND WAY	KIMBALL CREEK	1.2 MI N OF I-90	
124	08585000	3217	OVERFLOW CHANNEL	5	70.8	FO	48	62	1990	0	83RD AVE S	CATTLE CROSSING	0.5 MI E OF SR-167	
125	08071400	927B	PATTERSON CREEK	3	58.83		13.2	20	1951	1973	300TH AVE SE	PATTERSON CREEK	0.1 MI S OF SR-202	
126	08020000	228E	PATTERSON CREEK	3	89.1		26	50	1969	0	SNOQUALMIE RIVER RD	PATTERSON CREEK	0.4 MI N OF SE 24TH	
127	08779300	5024A	PATTERSON CREEK	3	75.71		20	33	2008	0	264TH AVE SE	PATTERSON CREEK	0.1 MI S OF SR-202	
128	08779500	344A	PATTERSON CREEK	3	87.4		23.5	37	2008	0	310TH AVE SE	PATTERSON CREEK	0.8 MI NE OF SR-202	
129	08852100	180L	PATTERSON CREEK	3	95.67		38	67	2012	0	292ND AVE SE	PATTERSON CREEK	0.3 MI S OF SR-202	
130	08298300	3015	PATTON BRIDGE	7	13.63	SD	24	430	1950	0	SE GREEN VALLEY RD	GREEN RIVER	1.5 MI SE OF SR-18	
131	08712500	682A	PRESTON BRIDGE	3	99.98		28	243	2003	0	SE 86TH ST	RAGING RIVER	0.1 MI E OF PRSTON-FLL CTY RD	
132	08446000	5046	PRESTON FRONTAGE ROAD	3	90.73		28	316	1974	0	UPPER PRESTON RD	RAGING RIVER	0.1 MI SE OF I-90	
133	08366500	1008G	RAGING RIVER	3	80.17	FO	28	169	1962	0	PRESTON FALL CITY	RAGING RIVER	0.6 MI E JCT 84TH AVE	
134	08371300	1008E	RAGING RIVER	3	83.95		24	52	1915	0	SE 68TH ST	RAGING RIVER	2.0 MI NE OF I-90	
135	08644200	234A	RAGING RIVER BRIDGE	3	68.18		40	200	1998	0	PRESTON FALL CITY	RAGING RIVER	0.2 MI S OF SR-202	
136	08712400	901	REDMOND RIDGE UPD	3	89.61		32.4	195	2001	0	REDMOND RIDGE NE	WETLAND	300' NW OF NE 80TH ST	
137	08610400	896A	ROCK CREEK BRIDGE	9	80.06	FO	17	61	1994	0	SE 208TH ST	ROCK CREEK	4.2 MI E ISSQ-HOBART RD	
138	08719600	4400	ROCK CREEK CULVERT	9	80.22	FO	22	28	2003	0	SE 248TH ST	ROCK CREEK	1.0 MI E OF SR-169	
139	08756500	920A	RUTHERFORD SLOUGH	3	89.06		25	30	2007	0	SE 39TH PL	RUTHERFORD SLOUGH	0.4 MI NE OF SR-203	
140	08477600	3126	S 277TH ST	7	39.7		62.8	16	1950	1973	S 277TH ST	IRRIGATION DITCH	1.5 MI E OF I-5	
141	08388600	999K2	SCENIC BRIDGE	3	57.83		19	61	1960	0	COUNTY ROAD	TYE RIVER	0.1 MI S OF SR-2	
142	08478900	3030	SE 380 ST	9	43.96		22.8	16	1950	0	SE 380 TH ST	SLOUGH	1.0 MI W OF SR-169	
143	08057200	3056A	SE 408TH ST	7	CLOSED		24	17	1915	0	SE 408TH ST	UNNAMED CREEK	0.2 MI E OF SR-164	
144	08839200	3201	SE 424TH ST	9	99.99		28.3	31	2011	0	SE 424TH ST	WATERCRESS CREEK	0.6 MI W 284TH AVE SE	
145	08349300	3198	SEMANSKI	9	91.98		28	37	1963	0	252ND AVE SE	BOISE CREEK	0.1 MI S OF SR-410	
146	08046900	2133A	SIKES LAKE TRESTLE	3	25.59	SD	21.1	260	1978	0	284 AVE NE	SIKES LAKE	0.5 MI E OF SR-202	
147	08278600	999Z	SKYKOMISH RIVER	3	85.18		24	255	1957	0	MONEY CREEK RD	SKYKOMISH RIVER	0.1 MI SE OF SR-2	
148	08638000	615A	SMITH PARKER BRIDGE	3	94.83		34	125	1998	0	328 WAY SE	RAGING RIVER	0.1 MI W OF FALL CITY RD	
149	07997400	3110	SOOS CREEK	9	60.26		20	15	1928	0	SE 208TH ST	SOOS CREEK	0.3 MI E OF SE 204TH	

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150	*08106100*	*3109A*	*SOOS CREEK*	*9*	*53.37*		*18.6*	*15*	*1959*	*0*	*SE 216TH ST*	*SOOS CREEK*	*0.3 MI E OF 132ND AVE SE*	
151	*08106900*	*3109*	*SOOS CREEK*	*9*	*65.51*		*22.8*	*16*	*1949*	*0*	*SE 224TH ST*	*SOOS CREEK*	*0.3 MI E OF 132ND AVE*	
152	08167200	3108	SOOS CREEK	9	52.97	SD	31.5	32	1971	0	148TH AVE SE	SOOS CREEK	0.2 MI N OF SE 240TH ST	
153	08813700	3205	SOOS CREEK	9	88.88		27.5	37	2009	0	172ND AVE SE	SOOS CREEK	0.2 MI N SE 240TH ST	
154	08813900	3106	SOOS CREEK	9	97.61		36	40	2009	0	148TH AVE SE	SOOS CREEK	0.1 MI E OF 148TH AVE SE	
155	08870100	3179	SOUTH PARK BRIDGE	8	69.96		55	921	2014	0	14/16TH AVE SE	DUWAMISH RIVER	0.8 MI N OF SR-99	
156	08097200	1023A	STOSSEL BRIDGE	3	44.64	SD	24	330	1951	0	NE CARNATION FARM RD	SNOQUALMIE RIVER	0.7 MI S OF SW 160TH ST	
157	07974800	5032	STOSSEL CREEK	3	64.43	FO	16	27	1947	1967	STOSSEL CK RD	STOSSEL CREEK	6.2 MI NE OF KELLY RD	
158	08823300	364C	SUNDAY CREEK	3	78.66		18	105	2010	0	NORTH FORK RD SE	SUNDAY CREEK	17.4 MI N OF I-90	
159	*08353200*	*122N*	*TATE CREEK*	*3*	*20.58*		*22.8*	*16*	*1952*	*0*	*SE 73RD ST*	*TATE CREEK*	*0.1 N OF FORK RD SE*	
160	0016611E	3095A	TAYLOR CREEK	9	95.72	FO	36.8	105	2005	0	NORVYDAN RD	TAYLOR CREEK	0.1 MI N OF SR-18	
161	08246300	61G	TOKUL CR PARK	3	47.63		22	85	1950	0	FISH HATCHERY RD	TOKUL CREEK	0.8 MI S OF SR-202	
162	*08255400*	*271AOX*	*TOKUL CREEK OX*	*3*	*99.84*		*0*	*19*	*1988*	*0*	*TOKUL RD*	*OLD MILWAUKEE RR BED*	*0.7 MI NE OF SR-202*	
163	08779100	1834A	TOLT BRIDGE	3	91.16		40	962	2008	0	NE TOLT HILL RD	SNOQUALMIE RIVER	0.1 MI N OF AMES LAKE RD	
164	08644300	1105	TUCK CREEK TEMP BRIDGE	3	75.67	FO	11.5	30	1999	0	W SNOQ VALLEY RD	TUCK CREEK	0.1 MI E OF FALL CITY RD	
165	*08633000*	*1000*	*TYE RIVER PED BRIDGE*	*3*	*PED*		*6*	*80*	*1996*	*0*	*OLD CASCADE HWY*	*TYE RIVER*	*4.0 MI N OF SR-2*	
166	08002400	1239A	UPPER PRESTON	3	46.13	FO	22.8	60	1950	0	UPPER PRESTON RD	ECHO LAKE CREEK	0.2 MI S OF W SNOQ RD	
167	08261500	271B	UPPER TOKUL CR	3	38.63		22.5	107	1965	0	TOKUL RD SE	TOKUL CREEK	1.5 MI NE OF SR-202	
168	08049600	3038	VEAZIE BRIDGE	9	52.28	FO	26	56	1950	0	VEAZIE-CUMBERLAND	COAL CREEK	0.3 MI N SE 392 ST	
169	08393500	228A	W SNOQUALMIE RIVER RD NE	3	90.02		26	36	1965	0	NE 18TH ST	DRAINAGE DITCH	0.2 MI W SNOQ R RD NE	
170	08779400	228D	W SNOQUALMIE RIVER RD NE	3	83.33	FO	23.5	33	2008	0	SNOQUALMIE RVR RD	DRAINAGE DITCH	2.0 MI S TOLT HILL RD	
171	*08391900*	*916A*	*W SNOQUALMIE RIVER ROAD*	*3*	*56.31*		*22.8*	*20*	*1951*	*0*	*W SNOQUALMIE RVR RD*	*SLOUGH*	*0.8 MI S NE TOLT RD*	
172	08886800	5009B	W SNOQUALMIE VALLEY RD	3	98.84		28	28	2016	0	W SNO VALLEY RD	DRAINAGE DITCH	0.5 MI N OF AMES LK RD	
173	08779700	364B	WAGNERS BRIDGE	3	92.48		18	175	2008	0	NORTH FORK RD SE	N FORK SNOQUALMIE RV	13.5 MI N OF I-90	
174	08415800	5011	WALTER SHULTS	3	64.84	FO	16.9	26	1953	2009	NE 106TH ST	BEAR CREEK	0.1 MI E OF AVONDALE RD	
175	08633100	63	WELCOME LAKE BRIDGE	3	87.11		28.7	32	1984	0	218TH AVE NE	COLIN CREEK	1.0 MI E OF AVONDALE RD	
176	08598300	3025	WHITNEY BRIDGE	7	84.43		38	250	1990	0	212TH WAY SE	GREEN RIVER	0.1 MI S GREEN VALLEY RD	
177	08651200	3027	WHITNEY HILL	9	98.52		34.3	63	2000	0	212TH WAY SE	NEWAUKUM CREEK	0.8 MI S GREEN VALLEY RD	
178	08180000	1136E	WOODINVILLE-DUVALL	3	54.65	SD	24	50	1948	0	WOODINVILLE DUVALL	DUVALL SLOUGH	1.8 MI SE OF I-90	
179	08180100	1136D	WOODINVILLE-DUVALL RD	3	57.98	SD	24	70	1948	0	WOODINVILLE DUVALL	DUVALL SLOUGH	0.9 MI W OF SR-203	
180	08180200	1136C	WOODINVILLE-DUVALL RD	3	57.23	SD	24	90	1948	0	WOODINVILLE DUVALL	DUVALL SLOUGH	0.8 MI W OF SR-203	
181	08138900	3194	WYNACO	7	86.39		26	195	1964	2004	168TH WAY SE	COVINGTON CREEK	2.7 MI E OF SR-18	
182	08752300	225C	YORK BRIDGE	3	97.39		33	220	2006	0	NE 116TH ST	SAMMAMISH RIVER	0.5 MI W OF SR-202	1/2 Redmond

Appendix Two - Load-Limited or Restricted Bridges

The following are King County owned bridges with restricted load capacity or restricted vertical clearances.
For closed bridges, go to http://gismaps.kingcounty.gov/mycommute.

LOAD-LIMITED BRIDGES

Bridge Number	Bridge Name	Type 3 3 Axle Truck	Type 3-S2 5 Axle Truck	Type 3-3 6 Axle Truck	SHV - SU4 4 Axle Truck	SHV - SU5 5 Axle Truck	SHV - SU6 6 Axle Truck	SHV - SU7 7 Axle Truck
		Legal Tonnage						
		25T	36T	40T	27T	31T	34.75T	38.75T
3060	208th Ave SE Bridge	24 T	-	-	21 T	24 T	27 T	30 T
3126	S 277th St Bridge	-	-	-	24 T	27 T	31 T	34 T
3030	SE 380th St Bridge	23 T	-	-	20 T	23 T	26 T	29 T
1320A	Ames Lake Trestle Bridge	21 T	34 T	-	19 T	22 T	25 T	28 T
509A	Baring Bridge	10 T	10 T	10 T	10 T	10 T	10 T	10 T
333A	Bear Creek Bridge	-	-	-	24 T	24 T	26 T	30 T
480A	Bear Creek Bridge	-	-	-	22 T	22 T	24 T	27 T
3055A	Boise X Connection Bridge *	18 T	29 T	39 T	15 T	15 T	14 T	14 T
249B	C W Neal Road Bridge	-	-	-	21 T	24 T	27 T	30 T
909B	Clough Creek Bridge	22 T	-	-	19 T	22 T	25 T	28 T
3035A	Coal Creek Bridge	-	-	-	26 T	30 T	32 T	35 T
240A	Cottage Lake Creek Bridge	-	-	-	-	28 T	32 T	35 T
364A	Deep Creek Bridge	-	-	-	25 T	28 T	31 T	34 T
180A	Evans Creek Bridge	24 T	-	-	21 T	23 T	24 T	27 T
3032	Green River Gorge Bridge *	-	-	-	22 T	23 T	22 T	25 T
257Z	Horseshoe Lake Creek Bridge	-	-	-	24 T	27 T	30 T	33 T
1741A	Issaquah Creek Bridge	-	-	-	-	-	34 T	37 T
1086A	Kimball Creek Bridge	-	-	-	-	28 T	28 T	29 T
122I	North Fork Bridge *	-	-	-	-	27 T	25 T	22T
3015	Patton Bridge *	-	33 T	35 T	-	30 T	30 T	29 T
999K2	Scenic Bridge	-	-	-	23 T	23 T	21 T	21 T
3109A	Soos Creek Bridge	21 T	-	-	19 T	22 T	25 T	28 T
271B	Upper Tokul Creek Bridge	23 T	-	-	21 T	22 T	23 T	24 T

*** Indicates Bridge Posted in Early 2019**

RESTRICTED FOR VERTICAL CLEARANCE

Bridge Number	Bridge Name	Vertical Height Restriction
4400	Rock Creek Culvert	10'-8"
1023A	Stossel Bridge	14'-9"

Appendix Three - Painted Bridges

	Bridge No.	Bridge Name	Fracture Critical Y/N	Bridge Type	Year Built	Structure Length	Year Last Painted	Steel Tonnage	Area of Steel Sq. Ft.
1	3024	FLAMING GEYSER	Y	Box Girder	1991	362	1991	140	15,400
2	2605A	FOSS RIVER	Y	Truss	1951	120	1994	20	3,200
3	3055A	BOISE X CONNECTION	N	Girder	1956	37	1995	25	2,750
4	3035A	COAL CREEK	Y	Plate Girder	1958	41	1995	11	1,210
5	364A	DEEP CREEK	Y	Plate Girder	1965	109	1995	15	1,650
6	3014	NEELY BRIDGE	N	Girder	1970	240	1996	76	8,360
7	122I	NORTH FORK	N	Girder	1951	252	1996	18	1,980
8	3015	PATTON BRIDGE	Y	Box Girder	1950	430	1996	40	4,400
9	3050B	GREENWATER	Y	Plate Girder	1973	110	1997	25	2,750
10	999K2	SCENIC BRIDGE	N	Girder	1960	61	1997	20	2,200
11	615A	SMITH PARKER BRIDGE	Y	Truss	1998	125	1998	45.7	7,312
12	404B	NOVELTY	Y	Truss	2000	623	2000	517	82,720
13	3032	GREEN RIVER GORGE	Y	Truss	1914	437	2001	225	59,000
14	617B	EDGEWICK	Y	Truss	2004	213	2004	216	23,760
15	3166	ELLIOTT BRIDGE	N	Girder	2005	406	2005	252	27,720
16	3216	GREEN RIVER	N	Girder	1990	250	2006	72	7,920
17	2550A	MT. SI BRIDGE	Y	Truss	2008	365	2008	162.5	26,000
18	1834A	TOLT BRIDGE	Y	Truss	2008	962	2008	860	137,600
19	364C	SUNDAY CREEK	Y	Truss	2010	105	2010	50	7,965
20	3179	SOUTH PARK	Y	Truss	2014	921	2014	1485	208,000
21	1023A	STOSSEL BRIDGE	Y	Truss	1951	330	2014	141	22,560
22	999Z	SKYKOMISH RIVER	N	Girder	1957	255	2017	144	15,840

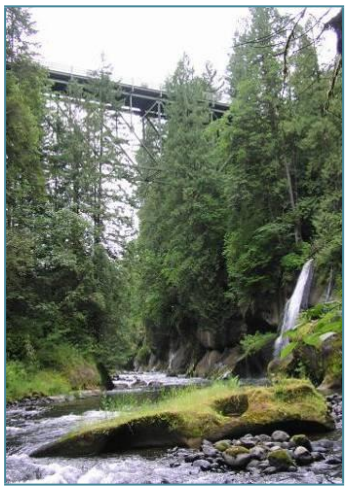
Structures that don't require painting:
Culverts: Cottage Lake Creek Bridge No. 5042, Kimball Superspan Bridge No. 891A, Tokul Creek OX Bridge No. 271AOX
Temporary Bridge: Tuck Creek Temp Bridge No. 1105
Closed Bridge: Miller River Bridge No. 999W

Appendix Four - Landmark Bridges

The 9-member Landmarks Commission was established in 1980 by Ordinance 10474 (KCC 20.62) to ensure that the historic places, material culture, and traditions which best reflect the region's 13,000 years of human history are preserved for future generations. This is a list of King County bridges designated by the King County Landmarks Commission as Landmark Bridges.

Baring Bridge No. 509A
Built in 1930, this timber suspension bridge spans the South Fork Skykomish River at Northeast Index Creek Road, near the community of Baring.
Designated in 1999.

Foss River Bridge No. 2605A
Built in 1951, spanning a tributary to the Skykomish River in northeast King County. This warren pony truss was added to the National Historic Registry in 2002.
Designated in 2004.



Green River Gorge Bridge No. 3032
Built in 1914, spanning the Green River Gorge in southeast King County. This is a rare and intact example of the Baltimore Petit deck truss structural design. The Green River Gorge Bridge is the only Baltimore Petit deck truss bridge owned and maintained by King County. Designated in 2004.

Judd Creek Bridge No. 3184
Built in 1953 on Vashon Island, it carries SW Vashon Hwy over Judd Creek. It is a concrete hollow-box (box girder) bridge designed by Homer M. Hadley. Designated in 2004.

Appendix Four - Landmark Bridges

Miller River Bridge No. 999W
Built in 1922, it carries the Old Cascade Scenic Highway over Miller River. This riveted Pratt truss is located near the community of Skykomish. Designated in 1999.

Patton Bridge No. 3015
Built in 1950, spanning the Green River in the vicinity of Auburn. A rare and early example of innovative structural design associated with Homer M. Hadley. In 1995, the Patton Bridge was listed in the National Register of Historic Places and the Washington Heritage Registry. Designated in 2004.

Raging River Bridge No. 1008E
Built in 1915, this bridge spans the Raging River between the communities of Fall City and Preston. It is a concrete earthen-filled arch structure, originally built to carry the Sunset Highway across the Raging River. Designated in 1997.

Stossel Bridge No. 1023A
Built in 1951, spanning the Snoqualmie River, this riveted Warren truss is located north of the community of Carnation. Listed on the Washington Historic Registry in 2002. Designated in 1997.